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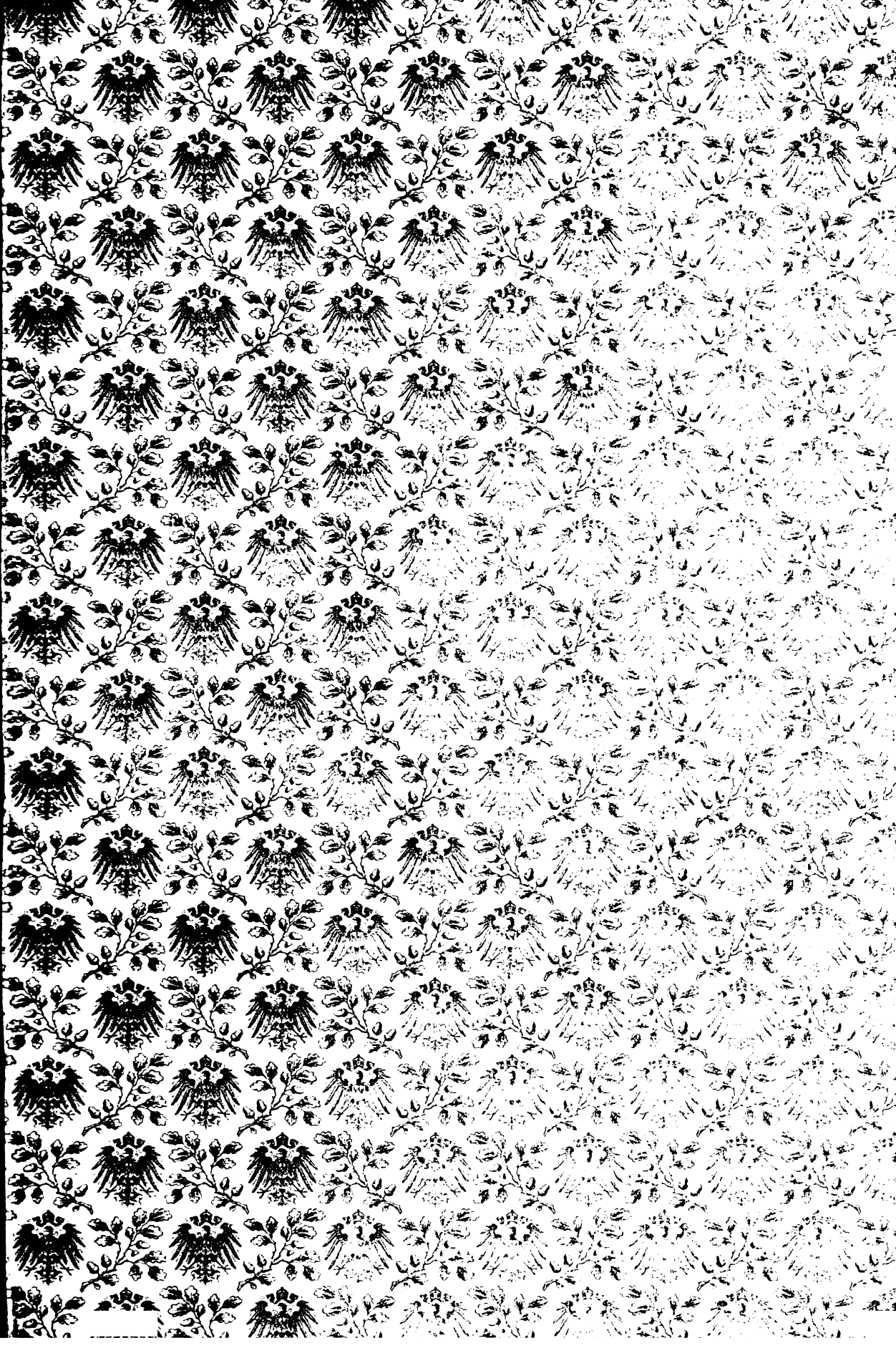
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THERAPEUTIC GAZETTE

A MONTHLY JOURNAL

OF

General, Special, and Physiological Therapeutics

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Original Communications.

TUBERCULAR ADENITIS TREATED BY THE X-RAY.¹

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In our crusade against tuberculosis, one of our most important points of attack is that of tubercular adenitis. In the treatment of this condition it is our duty to make use of every agent of value that is at our command. The ugly scars, which we see upon the neck, that are carried from

childhood throughout life, the recurrences after operation, and the secondary involvement of the lungs, indicate that surgery falls far short of the results for which we should aim.

If we have at our command an agent that will cause these glands to disappear without the production of scars it is our duty to use it. I believe that we have such an agent in the x-ray. While the results from the use of the x-ray are not as brilliant as we hope for in the future, as our technique and knowledge improve, they compare very favorably with the results produced by any other means.

The treatment of tubercular adenitis by means of the x-ray is still in its infancy. Those of us who have been in close touch with x-ray work know how much better our therapeutic results are to-day than they

¹Read at Pennsylvania State Medical Society meeting, Sept. 29, 1904.

were even a year or two ago, and we therefore have a right to expect much better results in the future than they have been in the past.

In a statistical study by Dr. Bullitt, of Louisville, Kentucky, the following results are shown: Of 226 cases collected by him from literature and by personal correspondence that were treated by the *x*-ray, 79, or 35 per cent, were cured; 92, or 40 per cent, were improved; and 55, or 25 per cent, were unimproved. Of the cases marked improved, many were still under treatment. Even though these results are the outcome of imperfect technique, they compare very favorably with the results obtained by any other method. Even if no more cures can be reported from the use of the *x*-ray than by surgical methods, we avoid the scar and thus have a distinct gain.

In cases where an operation has already been done, and a hypertrophied scar obtained, which is not uncommon, the rays will be of value in improving the scar.

The following cases will serve to illustrate the value of this method:

CASE I.—Miss E. B., aged twenty-five. The glands upon the right side of the neck became enlarged about four years ago, and after two years they had developed to the size of a walnut, and were removed by Dr. Ernest Laplace. Another series of glands upon the same side of the neck became enlarged about twenty months ago. In other words, they began to enlarge four months after operation. At the time of beginning treatment, which was April 12, 1904, two of the submaxillary glands were about an inch in diameter, and a chain of glands could be felt in the posterior cervical region which were about the size of peas. The glands had been gradually increasing in size. She was treated three times a week with a high vacuum tube at fifteen inches distant, and with about four amperes going through the primary. The glands began to be reduced after about two weeks, and gradually decreased, until at the end of seven weeks there was one gland remaining which was about the size of a pea, in the submaxillary region. Twenty-one treatments in all were given. She then went away on her vacation, and has not been seen since.

At the beginning of treatment small, moist râles were heard at the end of inspir-

ation at the right apex, and expiration was prolonged. These cleared up, and her general health improved.

CASE II.—Mr. F. F., aged twenty-three. Referred by Dr. W. L. Rodman. The glands upon the left side of the neck began to enlarge two years ago, and continued to increase in size until seen by Dr. Rodman. One of the glands had suppurated, and the abscess was incised by Dr. Rodman. A complete operation was not done because he could not remain in the hospital. Three weeks after this abscess had been incised the patient was referred for *x*-ray treatment. At this time the sinus where the gland had been incised had not closed. The remaining glands varied in size from a pea to a walnut. The right apex of the lung showed small, moist râles at the end of inspiration, and a prolongation of the expiratory murmur.

The patient was treated twice a week, fifteen minutes at each sitting. At the end of two weeks the sinus had closed. The remaining gland had been reduced in size, and a mild erythema had developed. He had ten treatments in seven weeks. At the end of this time the glands were reduced to about one-half. He lived out of the city and could not afford car-fare to come in for treatment. The treatment was therefore discontinued. He writes me that he thinks there has been no change since the treatment has been discontinued. Under continued treatment this case would likely recover, as judged by the improvement from ten treatments. I mention the case because it is the first that has come to my attention in which only the suppurating gland was incised. This reduces the scar to a minimum, and is probably an advantage.

CASE III.—Miss A. B., aged seventeen. Referred by Dr. Stillwell Burns. During the past year she has had enlarged glands in the right postcervical region. One of these had suppurated and drained spontaneously. Three were still present and were about the size of a hickory-nut. There was also one enlarged gland in the left submaxillary region. Moist râles and prolonged expiration were heard at both apices. Treatment was begun March 4, 1904, and was given three times a week. She was given only twelve treatments in seven weeks, at the end of which time the glands had entirely disappeared and she

was apparently well. When seen a few days ago she was apparently in perfect health. The râles heard at the apices had disappeared.

This case shows the advantage of early treatment. There is a small scar about a quarter-inch in length at the point of rupture of the suppurating gland; otherwise there is nothing to indicate that any disease had been present.

If the glands have already undergone suppuration, of course the rational method is to incise the gland and drain it, since we all know that an incision will leave a better scar than if allowed to rupture spontaneously. I believe, however, that only the softened gland should be removed, and that other glands should be subjected to x -ray treatment. This was first brought to my attention by the above case referred by Dr. Rodman. During the process of suppuration nature has already established a wall which if not disturbed will prevent dissemination or secondary involvement. By this method we then probably lessen the danger of dissemination and obtain a better cosmetic result.

Operations are dreaded by every one, and while we as physicians recognize that surgery can offer more early than late, the fact unfortunately remains that patients will postpone operation until the disease has advanced to a marked degree. A large area of glands are likely to have become involved, and some of these have gone on to suppuration.

If a less dreaded method of treatment can be offered, these patients will seek the aid of the physicians earlier, and better results be obtained.

In every case of tubercular adenitis that has come to my attention there was some evidence of involvement of the lungs. This is usually not to the extent that a positive diagnosis can be made, and often no cough is complained of, but the expiration is prolonged, at one or both of the apices, and fine crackling râles may be heard at the end of inspiration. At times the resonance is slightly impaired. For this reason the rays should not be confined to the glandular region, but should be allowed to play upon the lungs secondarily. Likewise all of the measures that are today recognized to be of value in combating tuberculosis should be added.

Just as the best surgical results are ob-

tained when the cases are seen early, so the best results are obtained with the x -ray when seen early; the duration of treatment is much shortened; the chances of secondary involvement are lessened; and better cosmetic results shown.

It is too early to estimate the chances of recurrence after x -ray treatment. I have two cases that have been well a year.

In the consideration of this subject the following conclusions may be drawn:

1. X -ray treatment offers the best cosmetic results.
2. The danger of secondary involvement or dissemination is lessened.
3. Suppurating glands should be incised and drained, and then subjected at once to x -ray treatment.
4. Cases should be treated as early as possible.

1409 SPRUCE STREET.

*THE REMOVAL OF FOREIGN BODIES
AND SUBSTANCES FROM THE EYE-
BALL AND INNER SURFACE
OF THE LIDS.*

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Very much has lately been written concerning the removal of magnetic substances from the eyeball. The use of giant and Lilliputian magnets has been extolled and condemned. The Roentgen rays and the sideroscope for localization have each in turn been discussed. But little has been written about the removal of the usual foreign bodies or substances, viz., sand, emery, lime, scales of iron, etc., which so frequently find lodgment on the inner surface of the lids or outer coats of the eyeball. These accidents to the eye are of very frequent occurrence; hence not only the trained specialist but also the general practitioner, and even a fellow employee or layman, is called upon to give relief. It is of the greatest importance in many cases to be able to act quickly and wisely.

No doubt there is more blindness and more distress caused in the aggregate by these so-called simple cases than by the penetration of foreign substances into the eyeball, about which we read so much. In the first mentioned cases wise and early treatment nearly always means a useful

eye, while unwise and late treatment too frequently lead to symblepharon, ulcers, leucoma, complete uselessness, or even to destruction of the organ. Whereas, when foreign substances entering the eyeball often cause cataract and severe inflammations, only a certain proportion of such eyes can or should be allowed to remain, while a much smaller number retain anything like useful vision. From a cosmetic standpoint sightless eyes, when the lesion or inflammation has been largely confined to the front of the eyeball, are much more apt to be unsightly and repulsive than eyes in which the inflammation has been chiefly confined to the inner or posterior part of the ball. The greater frequency and better outcome with proper treatment of these non-penetrating cases than of those where something pierces the eyeball demand more of our attention, and not less, than is now bestowed upon them.

Every oculist should be willing at any time to stop other work and give his immediate attention to certain of these cases. A few minutes' time in removing some caustic may mean very much to the patient. Some of these people have unusual ability to stand pain, and will feel constrained to await the doctor's time while their eyes are being slowly but surely destroyed.

The foreign bodies that most frequently enter the conjunctival sac are particles of dust, sand, cinders, ashes, bodies or wings of small insects, hairs of caterpillars, fragments of coal (especially in firemen), fragments of stone in stone-cutters, small pieces of emery in grinders, minutes particles of iron, usually iron scale, in the mechanics. The latter particles in the cornea are soon surrounded by a brown ring, which should also be scraped away when the iron is removed. Blades of grass or straw, hulls of grain, small pieces of wood, sawdust, and bits of glass, which latter are often very difficult to see, frequently impinge upon the eye. Sometimes an eyelash or a short hair becomes incarcerated in the puncta and irritates the eye as do intumed eyelashes.

Any of these substances should be removed as soon as possible, for if lodged in the cornea an inflammatory infiltration will soon form about them in the shape of a gray ring. Later the tissues in this

place will break down, the particle falls out, and healing takes place in favorable cases, a fine scar only marking its location. But an infective ulcer, a severe inflammation, or an iritis may follow, and the worst result—such as loss of the eye. Particles of powder and lime are the only substances that may remain in these tissues without exciting suppuration, by becoming permanently incorporated in them.

The symptoms of a foreign body in the eye are usually a copious discharge of tears, nature's effort to wash the particle out of the eye; discomfort in or fear of light, especially if strong or artificial; pain, nearly altogether due to the rubbing and irritation of the sensitive cornea (the conjunctiva not being very sensitive); redness, swelling, and congestion of the conjunctiva. The chief symptom is the sensation as if something is present in the eye, which, however, is frequently due to conjunctival irritation or inflammation.

It is proper to first get a short history of the accident, when and how it occurred, the nature of the foreign substance, if possible, and where it seems to be lodged at the time of the examination. If it is not lime or some caustic alkali or acid (see later), it is well to instil two or three drops of a 4-per-cent cocaine or 1-per-cent holocaine solution, a minute apart. The patient should be seated facing and close to a window (not in the direct rays of the sun), and told to look upward. The lower lid is now pulled down and its complete inner surface exposed to view, literally rolled out by a downward movement and pressure of the ball of the thumb, whose plantar surface rests on the skin of the cheek and eyelid. A condensing lens of about a three-inch focus should be used to throw a strong light on the part of the eye examined. If anything is seen, it can usually be removed by some moistened cotton wrapped on the end of a probe or toothpick. If it is not here, separate both lids, and carefully examine the cornea and bulbar conjunctiva. Light must be focused on the cornea by the lens, which is moved about, so as to illuminate the different areas in turn. A binocular magnifier or loop is of great service in aiding the examiner's eye to detect small particles.

The patient should be directed to look at various objects so as to place the cornea in different angles of light, thus avoiding

the annoying bright reflex from its curved surface, and also because some objects can be seen better with a certain color of iris as a background, and some better when the black pupil is behind them.

Frequently an eye will have to be examined the cornea of which has been already picked, scraped, or otherwise mutilated in previous attempts at removal. The epithelium is often rolled up in little curls, and may be readily mistaken for some foreign substance. Sometimes, also, the substance is enclosed in or behind rolls of this epithelium and greatly hidden from view, so that the most painstaking care must be used to detect and remove it, as a slender wavering tag of epithelium must often be removed at the same time.

If the foreign body is not found subsequently under the upper lid or in the fornix, notice whether the reflection of the window-pane strips on the cornea are contorted in any part, or if there is any break in the mirrored image, or if one part of the cornea lacks its usual luster and looks as if it had been breathed on. These appearances, when not due to old scars or irregular astigmatism, are generally due to the loss of some epithelium, which has been scraped off, exposing the numerous nerve fibers beneath, giving rise to the sensation as of something being in the eye, pain, fear of light, profuse discharge of tears. A very excellent method where no foreign body can be detected in the remaining part of the eye sac is to instil one drop of a 1-per-cent fluorescein solution. If an ulcer, abrasion, or an erosion of the cornea be present, it will immediately stain a light green. The adjacent normal cornea, at first unaffected, will soon show a slight infiltration for a distance of one or two millimeters around the denuded area, depending greatly on the condition. The area of first staining should be very carefully examined for the presence of a foreign body. If none is found, the upper lid should be everted. This is best done by having the patient, with head well back, look strongly downward. Place the end of a probe or other small, round, smooth instrument about the middle of the lid, and nearly one-half inch above its ciliary edge, pressing it gently downward, while the other hand grasping the lashes of the lid lifts its lower edge upward and outward, gently turning the lid over the probe, and

then holding its upper edge back with the fingers of the same hand. The inner surface of the lid should now be carefully examined, and frequently the offending material will be found in a shallow groove about one or two millimeters from the edge of the lid. It may be wiped off with cotton as before, or removed by forceps or a spud if embedded in the mucous membrane.

If it cannot be found, the fornix or upper portion of the conjunctival sac should be exposed. The patient continues to look down, while the edge of the lid is pressed well back and somewhat downward, and a small smooth metallic or glass rod is pushed between the out-turned lid and eyeball, and what is now the lower but at other times the middle part of the lid can be thereby lifted away from the eye, exposing to view the whole upper portion of the sac. Frequently foreign substances are hidden away in this part, even for long periods of time, and are often surrounded by granulations and secretion. Even very many specialists never explore this region. The writer frequently examines it merely to determine the condition of its mucous membrane, being neither painful nor difficult to do. If necessary, the writer's lid clamp may be used, with which the lid may be seized and easily turned over, thus exposing the whole fornix.

The writer has had a syringe specially-made to wash out the conjunctival sac, particularly this upper hidden portion. By this means a weak antiseptic solution may be poured through all portions of the sac and foreign particles not firmly embedded are often washed out.

If any foreign body has been found embedded in the cornea and is not easily removed by a swab of cotton, it is well to lay the patient on a lounge or table in good light, with the head slightly raised. If some oculists were forced to bend their heads back over the edge of a chair for some time a suffering public would be avenged, and they would probably recognize the needless amount of discomfort they have occasioned their patients. Besides the use of the two or three drops of cocaine or holocaine solutions already instilled, it is well to apply a small amount of the solution to the exact spot, by means of cotton wrapped on the end of a probe, for half a minute or longer. In this way

local anesthesia is best obtained, and the remainder of the eye is not subjected to such large amounts of the drug.

The operator should sit on an adjustable stool, resting the arm of the hand holding the spud on the patient's chest or on the table, the hand being steadied against the patient's face. Two kinds of spuds are useful, one with a blunt and the other with a sharp-pointed end. With the former substances can often be removed with one or more short scraping movements, and with the latter are literally dug out. Care should be exercised that proper antiseptic precautions be observed. The writer cleans his spuds by wiping them with cotton saturated with carbolic acid, three parts, and glycerin, two parts. Great caution must be used that deep-seated foreign bodies are not forced into the anterior chamber. Sometimes it is necessary to pass a knife through the periphery of the cornea and across the chamber, to give support behind the particle, or even to force it forward. If a foreign body cannot be removed from the conjunctiva by means of a spud or forceps, a small piece of the conjunctiva containing it may be seized by forceps and cut out.

As little of the surrounding normal tissue should be disturbed as possible, for the larger the denuded surface the longer the repair; greater pain, laceration, and photophobia is present, and better opportunities are given for an infected ulcer. Besides, while a loss of the epithelium on the cornea is quickly renewed without any defect remaining in its transparency, if the thin homogenous membrane (Bowman's) immediately beneath the epithelium is destroyed, it is replaced by a slight scar. If any of the deeper tissues of the cornea (true cornea) are destroyed, they are replaced by connective tissue accompanied by scarring and a certain loss of transparency. In longer periods of time, especially in the young, these connective tissue fibers become arranged more parallel like the true corneal fibers, with a corresponding increase in transparency.

It is well, therefore, to leave as small a scar as possible in every case. It is sad to see how some mutilate the front of an eye in removing a small foreign body, leaving a large scar, very detrimental to good vision, whereas a very slight one was all to be possibly expected. Poor light,

not properly focused on the eye by a lens, lack of a good binocular magnifier, insufficient and improper use of a local anesthetic, nervousness on the part of the operator or the tired, nearly broken-necked patient, the operator's poor vision, and the too frequent desire to merely remove the foreign body, even at the expense of considerable precious corneal tissue, all contribute their share to these too frequent mutilations of the eye. The recumbent patient is much more restful than any other. His head is quiet and steady, less likely to jerk or move, and besides, his head and body afford a good support for the operator's hand and arm, which is consequently more steady. The operator can under these better conditions quickly, safely, and easily remove a particle of iron, etc., from the eyeball which might occasion much trouble, and even disaster, under other conditions.

After the particle has been removed and the eye sac cleansed by a sterile or weak antiseptic solution, if there is much congestion of the conjunctival vessels cold applications (cloths wrung out of cold water) are usually very grateful and soothing to the eye. The patient may use cold applications for ten minutes every hour or two if much discomfort is experienced. The eye should usually be covered with a pad and bandage until the epithelium is completely regenerated, as the lids are thereby prevented from moving, and thus scratching and irritating the denuded portion. It is very important that elimination be normal, and a mercurial followed by a saline laxative should be given almost as a routine practice. If the particles are removed, and the proper after-treatment was given when necessary, these eyes usually recover their normal condition quickly. Where there is but little congestion and pain, the injury very recent, and not much epithelium destroyed, the pupil active and not abnormally small, a drop every two or three hours of a simple boric acid solution will be all that is needed, and many times no drops are required. However, when there is considerable congestion (especially of the small, straight vessels around the cornea) with possibly a deep or a large superficial injury of the corneal tissue, a small, rather inactive pupil and hyperemic iris, more active measures must be instituted. All the meas-

ures just mentioned should be used, viz., applications, bandages, free catharsis, and, in addition, the use of homatropine in milder and atropine in more severe cases. Frequently a complete rest in semidarkness of the other eye from work is also necessary.

In case there is a large denuded area and infection is likely to occur, on account of an existing dacryocystitis, conjunctivitis, or because of the infective nature of the wounding particle, it is often well, especially if the patient lives at a distance, to give an iodoform ointment gr. v in 3ij of vaselin (atropine gr. 1 in addition in some cases). Of this, a piece as large as a pea is to be placed in the conjunctival sac three times a day.

Burns of the conjunctiva and cornea and injuries by caustics are quite frequent. The former are the result of exploding powder, flames, hot water, steam, molten metal, or ashes striking the eye; and the latter arise through the action of acids or alkalies, especially lime, usually in the form of mortar.

In both instances the affected part of the conjunctiva or cornea is destroyed and converted into a scar, at first surrounded by portions of the swollen and reddened conjunctiva. The prognosis not only depends on the depth, extent, and location of the injury to the cornea, but also on the chances of adhesions that may develop between the lids and eyeball. Superficial burns, while occasioning much pain, lachrimation, and photophobia, usually heal quickly, if properly and thoroughly cleansed of all corrosive substances by wiping and the use of antiseptic solutions, by use of rest, protective bandages, and cold applications. Deep burns are more serious, as the part affected will often slough off and cause deep inflammations, such as iritis and cyclitis, requiring the use of atropine and ice-pads, providing thereby the corneal nutrition is not curtailed. This sloughing of the cornea is always followed later by scarring, *nebulæ*, *maculæ*, or *leucoma*, with consequent loss of transparency and vision, depending on the density and location of the cicatrix. Hot molten metal thrown in the eye sac is soon surrounded by steam, which serves to protect the eye.

When caustic alkalies have been the offending agent, it is well to wash the eye

with a weak acid solution; in case of acids use alkaline solutions.

If unslaked lime (CaO) has been thrown in the eye very recently, avoid the use of water, but wash the eye out immediately with an oil, such as sweet, olive, or castor oil (a supply of the latter should be kept handy). A very strong solution of cane-sugar subsequently dropped into the eye forms an insoluble compound with the lime and renders it harmless. After the complete removal of the lime it is well to use cocaine or holocaine in castor oil. A drop of this should be instilled into the eye sac every two or three hours to control pain. If opposing surfaces of the conjunctiva are destroyed, the eyeball should be moved from side to side or up and down at intervals, or the lid may be lifted away from the ball to prevent union of the surfaces (*symblepharon*). If the conjunctiva in the fornix has been destroyed, probably nothing will prevent *symblepharon*, although some of the surgical appliances recommended may be useful. Ordinary air- and water-slaked lime may be removed like any other foreign substance, as they are not caustic in their effect if completely slaked.

In this paper the writer has not attempted to deal with perforating injuries of the cornea or sclera, which have a much more serious import and usually demand skilled treatment, but he has tried to explain as well as short space would permit how to wisely treat those common but important cases that frequently come to all practitioners.

ADENOID VEGETATIONS OF THE PHARYNX.¹

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It may seem presumptuous on my part, in the presence of so many specialists, to choose a subject like the one named. Two things have prompted me to consider this topic before you to-day:

The first, the opening sentences in Holt's article on this subject in his textbook on diseases of children. He says:

¹Read before Keoka Lake Medical and Surgical Association, July 28, 1904.

"It is a very common condition, and one very much neglected by the general practitioner. It is the source of more discomfort and the origin of more minor ailments than almost any other pathological condition of children."

The second, the condition of three children, boys, who have been presented to me during the last few days. Case one, aged eight, son of a prosperous professional man, pale, thin, lymphatic node under the angle of the lower jaw on each side, a mouth-breather, narrow-chested, never well, under medical care most of the time since early childhood, listless, inattentive, unable to steadily attend school, does not take active part in the sports of his playmates, is a spectator only.

Case two, aged nine, son of a well-to-do merchant, coughs all winter, stoop-shouldered, chicken-breasted, always delicate, a mouth-breather, has large tonsils as well as adenoids.

Case three, aged eight, son of a manufacturer, always frail, coughs all winter, somewhat deaf, sleeps badly, snores, has large tonsils as well as adenoids. The mother said: "We have paid hundreds of dollars in doctor bills for him."

Here were three boys not from the families of the poor, but the well-to-do, who from infancy have been looked after by capable physicians, yet in no case had adenoids been recognized as the pathological condition chiefly at fault.

The diagnosis of adenoids does not offer any difficulties to the specialist. Patients come to him because of some nose or throat trouble. In the case of the general practitioner it is different. His patients come to him with all sorts of stories, not necessarily of a local nature; the condition, therefore, is frequently overlooked. Physicians fail to appreciate the significance of the symptoms present. An intimate knowledge of the local and general facts is essential, otherwise the signs are imperfectly understood. The treatment in consequence is palliative.

Halsted says the child with adenoids presents two different conditions—lymphatic diathesis manifesting itself locally in the nasopharynx, and the constitutional and local results of the nasal obstruction. Were this fact remembered, the disease would not be overlooked so frequently. It is only a few years ago since Morell

MacKenzie wrote: "We often predict the existence of large tonsils as the child with open mouth, drooping eyelids, dull expression, and thick voice enters the consultation room."

Until the researches of Meyer were made public thirty-six years ago, such symptoms were credited to the tonsils. At the present time we recognize that the description applies to the changes produced by the pharyngeal and not by the faucial tonsils. In advanced cases with the above characteristic facies no one ought to fail to make the proper diagnosis. A moderate amount of disease, however, may not give manifest symptoms. Indeed, not infrequently growths are found in little patients who complain little or not at all of local disturbances.

There is a mass of lymphoid tissue situated at the vault of the pharynx which in structure closely resembles the tonsils. It is often spoken of as the pharyngeal tonsil. Like the faucial tonsils this may become greatly hypertrophied, so as to form a tumor large enough to fill the rhinopharynx completely. These tumors have a broad attachment, which is sometimes more to the roof, sometimes more to the posterior wall, of the pharynx.

The term adenoid vegetation was first given them by Meyer, who first described them in 1868. In infancy these growths are soft, vascular, and spongy; in later childhood they become firm, dense, and more fibrous.

Holt says adenoid vegetation is associated with hypertrophy of the faucial tonsils in about one-third of the cases. Growths large enough to cause nasal obstruction may in time produce changes in the facial bones which amount to positive deformity.

The bony palate is dome-shaped, or even acutely arched; the dental arch of the upper jaw becomes almost V-shaped.

The constitutional condition called lymphatism, or the status lymphaticus, is the one with which adenoid growths are most frequently associated. Often, however, there are many marked manifestations of this condition. Sometimes every one of a large family of children is affected, and even the parents have had the same disease.

Many authorities believe there is no doubt regarding the influence of heredity

in the production of adenoids. In many cases they are congenital. Rachitic children are somewhat oftener affected than others. Of 945 cases collected by Lewin, in which specimens of adenoids were examined, tuberculosis was present in five per cent, while in 75 cases examined by Nicoll and Lartigau, of New York, twelve were tuberculous. This is an important fact, for it is highly probable that this is the channel of infection in not a few cases of tuberculous meningitis.

Our suspicions are aroused by repeated attacks of nasal catarrh, and it is only at such times that the children appear to suffer. When the attack is over they are free, and in the eyes of their parents well. Scarlet fever, measles, or diphtheria induce a rapid increase in the size of the growths. The prognosis is more grave in such cases, but if the patient recovers the symptoms of nasal obstruction are usually more pronounced. Numerous instances in which adenoids are said to have followed an attack of one of the infectious diseases will upon closer investigation disclose evidence of prior troubles.

Indolently enlarged lymph nodes, painless, freely movable, about the size of an almond, situated at the angle of the jaw, one on either side, point to trouble in the nasopharynx.

A digital examination generally reveals the lymphoid hypertrophies. The nodes are apt to become enlarged as a result of acute nasal catarrh, or even without any apparent cause.

When the attention of the parent is directed to these nodes, the information is volunteered that the kernels increase in size with each new cold, and subside again as the latter improves. The children are sometimes brought to a physician because of the swollen nodes. Under such circumstances the original cause is referred to the nasopharynx, and the presence of adenoids may be suspected.

Obstructive symptoms are inability to blow the nose, mouth-breathing, constantly or only during sleep, and a nasal voice. The difficulty in breathing is increased when the child lies upon its back. In consequence of this children sleep in all sorts of positions, lying upon the face as well as upon the hands and knees, and often toss restlessly in the vain endeavor to find some position in which respiration is easy.

The attacks of dyspnea may amount to almost asphyxia, and are an explanation of many of the so-called night terrors from which children suffer. When the obstruction has existed from infancy, there are often deformities of the chest; these are most marked in rachitic subjects. The most frequent one consists in deep lateral depressions of the lower part of the chest, with a prominence of the sternum, the familiar pigeon- or chicken-breast, so-called. The deformity is due to interference with pulmonary expansion. Blake, of Boston, found some impairment of hearing in 39 out of 47 cases examined. In 37 of these marked improvement in hearing followed the removal of adenoid growths. The reflex symptoms connected with the adenoid growths are many.

Holt says in his experience the majority of young children who are subject to attacks of spasmodic croup have adenoids, the removal of which is generally followed by their complete cessation.

Inspiratory spasm, laryngismus stridulus, is sometimes due to adenoids.

Intractable coughs, frequently of a spasmodic character, with bronchial symptoms or signs of persistent hoarseness, lasting for months or even years, and recurring with every cold season, are often cured by the removal of the adenoids, after all other treatment has been of no effect.

Frequent attacks of stammering, chorea, and even epileptiform seizures, have been attributed to adenoids. Of 192 cases of adenoid vegetations under the observation of Groenbeck, thirty suffered from incontinence of urine. The removal of the adenoids in twelve of these cases was followed by a cessation of the incontinence. In two of these the adenoids reappeared, followed by a return of the incontinence; fifteen were considerably improved; two slightly improved. In three the operation was without any appreciable effect; one case was lost sight of; seven refused operation.

The general health of patients suffering from adenoids may be impaired from lack of oxygen, due to obstruction of respiration, from loss of sleep, confinement to the house, necessitated by attacks of bronchitis or head colds.

Marked anemia is often presented in old and neglected cases of a severe character, which retards growth. Their facial ex-

pression is dull, stupid; they are languid, listless, often depressed; and this, in connection with their deafness, frequently causes them to be regarded in school as children who are mentally deficient.

Children with adenoid growths contract diphtheria and tuberculosis more easily than do others, and in them attacks of diphtheria, scarlet fever, measles, and whooping-cough are all likely to be more severe.

The diagnosis may be made from the symptoms, by means of a rhinal mirror, or digital exploration of the nasopharynx. The symptoms are often so plain that no one can fail to interpret them correctly.

The use of the mirror for posterior rhinoscopy is often impossible in children. Digital examination, properly performed, yields the desired information. For one reason or another it may not be desirable at the time to resort to a digital examination. Under such circumstances reliance may be placed upon two symptoms, says Huber, who for many years has been Jacobi's chief assistant. Either one or the two jointly offer a ready and easy method for correct diagnosis.

First, the presence of two small lymph nodes, painless, and freely movable at the angle of the lower jaw, one on either side, which are apt to become swollen with each new catarrhal inflammation of the nose. They return to their former size when the nasal trouble has disappeared, provided a mixed infection has not taken place.

Second, upon oral examination and inspection, if the size of the tonsils does not obstruct the view, numerous small lymphoid hypertrophies will be found upon the mucous membrane of the posterior pharynx. Now and then, at the level of the soft palate, larger masses are present. The appearance of the diffused lymphoid infiltration is characteristic. The isolated prominences, more or less numerous, pearly and translucent in appearance, resemble smaller or larger sections of boiled sago, projecting above the surface of the pharyngeal mucous membrane.

Tenacious mucus, or muco-pus, which should be removed, may coat the nasopharyngeal wall and partly obscure these little growths. The presence of the latter, or of the lymph-node glands referred to at the angle of the jaw, justifies a diagnosis of adenoids, and a digital examina-

tion for the purpose of establishing their existence is unnecessary under such circumstances.

All possible means should be used to prevent these patients from taking a cold, such as proper clothing, cold sponging, cod-liver oil, etc. With the larger growths these methods may improve the catarrhal symptoms, but can hardly affect the mechanical ones.

The reduction of tumors of any considerable size by local application all operators agree is a delusion. Such cases can only be relieved by operation. The earlier the treatment is instituted, the greater the success in preventing secondary changes, the thoracic deformities, abnormalities in the jaws, hard palate and teeth, and numerous other evils.

It is true, however, that about the time of puberty there is a natural tendency to retrograde changes in the pharyngeal and faucial tonsils. In the meantime irreparable damage may be done to the bony structures, ears, and the general health. Lymphoid growths are peculiar to the developing period of life. They interfere with normal nasal respiration. The blood, therefore, is imperfectly supplied with oxygen, and as a natural sequence the cells, tissues, and organs will suffer. The bad results are not limited to the nose, ear, and throat. The brain, heart, and lungs show the effect of imperfect oxygenation and consequent malnutrition. The parts are not equally affected; the symptoms vary with the individual.

Holt gives indications for removal of adenoids as follows: When the obstructive symptoms—habitual mouth-breathing, disturbed sleep, nasal voice, chest deformities, etc.—are marked. Second, for a chronic nasal discharge, constantly recurring head colds, particularly when these tend to attacks of bronchitis or laryngitis. Third, when there is asthma or repeated attacks of catarrhal spasm of the larynx. Fourth, deafness, chronic otitis, or repeated attacks of acute otitis. Fifth, for certain nervous symptoms, enuresis, stammering, attacks of night terrors, etc.

Although striking improvement is not infrequent, one should be cautious about promising too much where these nervous conditions exist; also in older children where there is deafness or asthma.

The only instrument needed for opera-

tion is a modification of Gottstein's curette. A very few operators use the finger-nail, but this is only possible where the growths are very soft, and is at best an uncertain method. The operation may be done in the intubation position without an anesthetic. Many operators prefer this method, but most prefer anesthesia, remembering the dictum of Meyer, who urged that all operations be done "thoroughly and humanely."

Skilled operators are accustomed to use forceps, Lowenburg's or some modification, before using the curette. In the hands of an unskilled operator it may do much harm. The patients in general are in poor health, their blood is impoverished, the heart weak, the lung power more or less impaired. There is a general systemic weakness, a diminished power of resistance to disease or shock, and moreover there is great danger of sudden cardiac paralysis. Hinkel in 1898 collected histories of eighteen deaths under chloroform in operations for adenoids; others have been added since.

Evans, of Louisville, reported in 1900 a fatal case from the use of nitrous oxide gas. Because of the risk of chloroform the tendency of many operators at the present time seems to be to have recourse to the less serious anesthetic—ether. Personally, I have never used anything but chloroform, and that without unpleasant results.

Halsted, of Syracuse, recommends previous hypodermic injection of one-three-hundredth grain of atropine, before general narcosis is resorted to. This has been recommended in various quarters. Hemorrhage is usually severe, but generally without untoward results. The child should not pass from the physician's observation, however, until the bleeding has stopped. Four cases of fatal hemorrhage had been collected up to 1893. A Canadian physician reported in 1902 a fatal secondary hemorrhage recurring four days after operation.

If the symptoms are due to the adenoids and the tonsils, the anterior nares and nasal passages being free, the relief is immediate and marked. The change is surprising: in a short time the cheeks fill out, the expression and intelligence improve, the restlessness disappears, breathing is carried on normally and quietly, and the im-

proved health speaks volumes for the success of the operative measures.

If, however, the anterior nares are small, the cartilaginous or bony septum thickened or deflected, anterior or posterior turbinate hypertrophies exist, further treatment and operation may be required.

In giving the prognosis as regards the disappearance of symptoms, it is well to remember these points, otherwise considerable disappointment will result, and possibly discredit be attached to a most useful operation, one which done early and thoroughly prevents serious consequences, and rescues the patient from a life of suffering and misery and ill health.

VERATRONE.

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AND

H. C. HAMILTON, M.S.

Some years ago one of us¹ had a series of experiments undertaken for the purpose of devising fluid preparations of such of our old and tried drugs as ergot, digitalis, etc., suitable for oral and hypodermic use. The chemistry of this class of drugs was, and still is, in such a chaotic state that it was deemed advisable to branch off the beaten paths of pharmacy, ignore for the most part the results of chemical investigation, and adopt the pharmacologic method for obtaining suitable preparations for therapeutic purposes. This, from the physician's point of view, would seem to be a most rational procedure, since it makes very little difference in the treatment of disease what the chemical properties of a given drug may be, provided it produces when administered to the patient the desired pharmacologic action, with the least amount of irritation or other untoward effects.

In brief, the method of studying these drugs and obtaining the desired preparations has been as follows: The U. S. P. fluid extracts, since they represent to the best of our knowledge the therapeutic properties of these drugs, were taken as

¹E. M. Houghton.

standards. The normal physiologic action of these was determined upon suitable animals and recorded. Samples of prime crude drug were then percolated with various menstrua, and the resulting percolates were tested upon animals and the reactions compared with the standards previously established. Thus step by step as a percolate was obtained or was modified by subsequent treatment its qualitative and quantitative activity was determined.

For full reports of the work on ergot see THERAPEUTIC GAZETTE, July 15, 1898, "Ergot Aseptic," and THERAPEUTIC GAZETTE, July 15, 1903, "A Pharmacological Study of an Aseptic Preparation of Ergot Devised for Hypodermic and Internal Administration;" and on

atrine, etc. On the contrary Cushny holds that the therapeutic properties of the drug for the most part depend upon the contained veratrine, and that from a pharmacological point of view it serves no useful purpose in therapeutics. Many practitioners speak highly of veratrum viride as an agent for controlling the sthenic symptoms of a beginning pneumonia, eclampsia, etc. Some physicians go so far as to believe it to be almost a specific for the latter disease. At best the subject is a debatable one. In any case where the drug is to be employed, particularly if for injection, it is almost axiomatic that it should be of uniform activity, non-irritating, and sterile.

Many preparations of veratrum viride were made and tested for activity upon the

FIG. 1.

digitalis see *Medicine* for August, 1903, "An Attempt to Obtain a Uniformly Active, Sterile, and Non-irritating Preparation of Digitalis for Subcutaneous and Internal Administration."

The therapeutic results obtained from the use of the ergot aseptic, ergone, and digitalone were the incentive for making an extended study of veratrum viride. As already intimated, the chemistry of veratrum viride is very much involved; likewise pharmacologists and therapeutists differ greatly in their views. Thus, Wood and Brunton claim that the activity of the plant depends principally upon jervine and rubijervine (veratroidine), and recognize that the action of these constituents may be modified to a certain extent by traces of pseudojervine, cevadine, ver-

circulatory and respiratory systems, the kymograph (see Fig. 1) being employed for registering the pharmacological reactions. The irritating properties were determined by injecting the preparations subcutaneously into guinea-pigs, the animals being chloroformed a few hours later and post-mortem examination made. Finally, when the results of the experiments showed that the desired preparation had been obtained, a detailed pharmacological study of it was made. It was found, as in the case of ergone and digitalone, that the finished preparation would not keep without the use of an antiseptic. Chloretone, about four grains to the ounce, was again found to answer all purposes, as it prevented bacterial infection and rendered the injections less painful.

Since the preparation had been obtained in the same way, and was combined with chloretone, it seemed desirable to designate the new product "veratrone," in keeping with similar preparations of the drugs just named.

Veratrone is a clear, amber-colored, non-alcoholic, aqueous fluid, having a pleasant odor and a slightly bitter taste. Its pharmacologic activity has been adjusted to one-fourth the strength of the U. S. P. fluid extract by determining the minimum lethal dose per gramme of body weight for frogs of the same species and weight, kept under uniform conditions, comparing the results with those obtained from the injection of known quantities of the U. S. P. fluid extract of veratrum viride.

The sterility of the preparation, when kept under as nearly the same conditions as would be found in a drug store, was repeatedly tested. Samples were planted on several varieties of culture media and placed under the most favorable conditions for growth. Subsequent examination of these plants showed in each instance that the fluid was aseptic.

In order to determine the amount of irritation produced by hypodermic administrations, a number of guinea-pigs were injected with the new preparation, fluid extract veratrum viride, Norwood's tincture, etc., suitable corrections being made so that each injection would represent the same amount of crude drug. On chloroforming the animals to death some hours later and making a post-mortem examination, it was clearly manifest that the irritation produced by veratrone was decidedly less than resulted from the injection of the other preparations. As another evidence of the irritating properties of veratrone as compared with the other preparations of the drug just mentioned, it was found that dogs showed less discomfort, nausea, and other evidences of irritation when it was given per stomach. This may in part have been due to the local anesthetic action of the chloretone.

Veratrone, when applied to the isolated frog's heart, produced at first a more prolonged and stronger systole, but this was soon followed by an irregular contraction of the heart muscle, one part of the muscle being contracted, while another

was relaxed—a sort of peristaltic wave, passing over the ventricle, which soon ceased beating and remained in systole.

In order to determine the action of the preparation upon the circulatory and respiratory systems, a number of experiments were made upon dogs, the results being recorded on a kymograph (see Fig. 1).

The following tables and tracings, which are typical, show the action of the new preparation to be essentially the same as that of the U. S. P. preparation, differing from it only quantitatively:

TABLE NO. 1.

Dec. 8, 1904. Experiment No. 5. Dog, weight 11 kilogrammes; a very quiet animal. This experiment was made to show the general action of veratrum viride.

Time.	Temperature.	Respiration per minute.	Pulse rate per minute.	Remarks.
9:20 A.M.	102.8° F.	18	112	Normal.
9:40 "	102.8° F.	16	106	Normal.
10:05 "	102.6° F.	20	114	Normal.
10:15 "	.....	...	.....	Given 2 Cc. veratrone undiluted subcutaneously. The animal does not whine or show other evidence of pain.
10:19 "	.....	...	.....	Respiration quickened, tongue begins to hang out of the mouth. Snaps his jaws together.
10:21 "	.....	...	.....	Begins to be nauseated, and respiration becomes slow and spasmodic.
10:25 "	.....	...	.....	Emesis occurs. Respiration ceases.
10:28 "	.....	...	.....	Still nauseated. Deep respiration. Animal lies prone, but moves about readily when disturbed, showing great muscular weakness.
10:29 "	101.4° F.	Irregular gasps.	70 and irregular.	
10:33 "	.....	...	.....	Begins to move about and show signs of recovery.
10:45 "	100.8° F.	10	76	
10:59 "	100.4° F.	4	82	Still nauseated. Lies prone, but shows much improvement.
11:15 "	99.2° F.	6	75	
11:20 "	.....	...	.....	Becoming drowsy, lies prone. Less nausea.
11:30 "	99° F.	8	76	
11:45 "	98.2° F.	16, irregular.	74	Resting. Does not like to be disturbed.
12:10 P.M.	98° F.	12, irregular.	124, irregular.	
1 "	97.4° F.	6, irregular.	136, irregular.	
2:30 "	94.3° F.	16	154	
4:23 "	96.6° F.	22	128	

Before the following morning the dog made a good recovery. No treatment was

given except to keep the animal near a radiator.

TABLE NO. 2.

Dec. 9, 1904. Experiment No. 7. Dog, weight 5 kilogrammes; quiet female. See tracing for details. Anesthetic—chloretone and morphine. Artificial respiration.

Time.	Pulse rate per minute.	Blood-pressure.	Remarks.
4.38 P.M.	168	34 m.m. mercury.	Normal.
4.40 "	.....	.....	0.2 Cc. veratrone injected into femoral vein, diluted with physiological salt solution to 5 Cc.
4.41 "	81	21 m.m. mercury.	Heart action somewhat irregular and tending to go into diastole.
4.50 "	63	29 m.m. mercury.	Heart action more regular.
5.15 "	76	15 m.m. mercury.	
5.15+ "	.....	.....	2 Cc. veratrone injected into femoral vein, diluted to 5 Cc. with saline.
5.17 "	Rapid and irregular.	46 m.m. mercury.	No preliminary fall in blood-pressure. (See note.)
5.22 "	96	27 m.m. mercury.	Pulse regular.
5.30 "	112	21 m.m. mercury.	
5.31 "	.....	.....	5 Cc. veratrone injected into femoral vein.
5.34 "	165	54 m.m. mercury.	Quite regular heart action.
5.41 "	Quick and irregular.	24 m.m. mercury.	Experiment discontinued.

NOTE.—The heart action is very tumultuous, several partial beats being followed by very strong beats with marked diastole and systole.

This experiment, since the animal was supplied with artificial respiration, shows very clearly, as there was 5 Cc. injected at one time, more than twice the fatal dose (2 Cc.) (see Experiment 8), that death depends upon respiratory failure. So long as sufficient air is supplied, the circulation, while both heart action and blood-pressure may be profoundly disturbed, will take care of itself.

Dec. 10, 1904. Experiment No. 8. Dog, weight 4.5 kilogrammes. Anesthetized with chloretone and morphine. (See tracing for details.) This experiment was designed to show the action of large doses of the drug upon the respiration. The respiration normally was very slow and prolonged. Two Cc. of veratrone diluted to 5 Cc. with saline was injected into the femoral vein. As soon as the drug was injected the animal gave a few quick gasps and the respiration ceased. Very quickly there was a fall in the blood-pressure, followed in a few seconds by a pronounced rise, the heart becoming very irregular at the same time. This continued for about two minutes, when the heart action became very feeble, accompanied by a rapid fall in blood-pressure.

In four minutes after the respiratory standstill the heart ceased to beat.

This experiment shows very clearly that the animal died of respiratory paralysis, the circulatory changes following this paralysis being largely due to the accumulation of CO₂ in the blood.

Dec. 10, 1904. Experiment No. 9. Dog, weight 12.8 kilogrammes. Anesthetized with chloretone and morphine. (See tracings for details.) This experiment was designed to show the action of veratrone in small doses upon the respiration. Normal rate of respiration 14 per minute. Injected 0.25 Cc. veratrone diluted to 5 Cc. with saline solution into femoral vein. The respiration was at once slowed to eight per minute and somewhat irregular. In about five minutes the rate had increased to eleven beats per minute, and a little later became normal. When the experiment was discontinued the blood-pressure showed a temporary fall followed by a partial rise, gradually falling to a point much below normal, where it remained fairly constant for a few minutes, and then returned to nearly normal. The pulse was much slowed, but remained quite regular.

This experiment shows the therapeutic possibilities of the drug, especially upon the circulation and respiration, viz., slowing of the respiration and pulse rate, accompanied by a fall in blood-pressure.

A study of these and many other experiments on the circulatory and respiratory systems shows that we may draw the following conclusions regarding its action:

Small or therapeutic doses slow and deepen the respiration, decrease the pulse rate, and produce a fall in blood-pressure.

Toxic doses first of all produce momentary stimulation of the respiratory center, resulting in a few quick gasps, followed by respiratory paralysis and death from asphyxia.

Little need be said regarding the therapeutic uses of this preparation. As already intimated, authorities differ greatly as to the advisability of prescribing any preparation of veratrum viride. Those who recognize the drug as of value are agreed that its range of usefulness is limited almost entirely to its employment as a means of reducing arterial action. Sometimes, as in typhoid fever and other

similar conditions, it should not be employed even though it apparently is indicated. Wood claims that for the controlling of "true sthenic arterial excitement," in any disease except gastritis, veratrum viride may be employed as a prompt, thoroughly efficient, and "very safe remedy" as "it is almost incapable of producing death in a robust adult, unless used with great recklessness and in repeated doses." A number of French writers believe it is the best remedy to employ in sthenic pneumonia. Where digitalis is contraindicated veratrum viride may be of much service. It is looked upon with the greatest favor perhaps for the treatment of eclampsia, many writers believing it to be the best means available for controlling the symptoms. In general it may be employed with great success wherever venesection would be practiced, with the advantage to the patient of being bled into his own veins. Whenever employed, sufficient doses should be administered to produce decided physiological effects, but care should be exercised not to push the dose too far.

Usually 1 to 2 Cc. (15 to 30 minims) as an initial dose per os, and half that quantity subcutaneously, is sufficient to elicit a physiological effect, but the physician must be guided by the symptoms manifested by the patient.

As would be expected from its pharmacological action, this new preparation does not differ essentially in its medicinal properties from other preparations of the drug, except that it can be used with a greater degree of certainty on account of its uniform strength, with less inconvenience to the patient because of the elimination of irritating and inert substances found in other preparations, and, since it is sterile, with less danger of infection.

Veratrone has been employed in several hospitals in the treatment of various diseases, and has been found to produce the desired therapeutic effects. It has been employed particularly in the treatment of eclampsia, and is looked upon with especial favor by those employing it. The report of Dr. E. L. Hunt, of the Worcester City Hospital, Worcester, is typical of several received:

"You will perhaps recall that about seven months ago you sent for trial a preparation of veratrum viride, containing 25

per cent of the fluid extract preserved in chloretone for hypodermic use.

"We have had opportunity to use the preparation in several cases of puerperal eclampsia and one of severe uremia in acute nephritis, in all of which convulsions ceased as soon as the patient reacted to the drug—i.e., after the pulse fell to 90 per minute or below, our aim in its administration being to keep pulse below 70.

"Your preparation in our experience has shown excellence in the following respects:

"1. It has so far shown no deterioration on keeping, hence is of uniform activity.

"2. Its subcutaneous use is not followed by local irritation.

"3. A smaller dose than of the official tincture seems to be efficient, probably due to its less irritating character.

"So far then as our still limited experience goes, the preparation should commend itself to all practitioners who believe in the veratrum treatment of eclampsia. It seems very desirable to have a preparation suitable for hypodermic use, and your preparation seems to be a step in that direction.

"I make the above statement by permission of Dr. Wheeler, Visiting Obstetrician of the Hospital."

CONCLUSIONS.

Veratrone is a stable, uniformly active, non-alcoholic, but slightly irritating, sterile preparation of veratrum viride, of one-fourth the strength of the U. S. P. fluid extract. It is always ready for use without dilution, and can be administered orally or subcutaneously for the prompt control of sthenic respiratory and circulatory symptoms, as in beginning pneumonia, eclampsia, etc.

EXPLANATION OF TRACINGS.

The tracings are to be read from left to right.

At the bottom the broken line records seconds or minutes. Immediately above are the blood-pressure tracings taken directly from the carotid artery.

The upper tracing in experiment No. 7 is taken directly from the ventricle of the heart by means of the myocardiograph (see Fig. 1), the down stroke of the tracing being made by the systolic movement of the heart, and the up stroke by the diastolic movement.

In experiments No. 8 and No. 9, the upper tracings show the respiratory movements, as recorded by an electrical signal, which makes a down stroke at each inspiration.

A NEW AMBULATORY SPLINT FOR FRACTURES OF THE THIGH OR LEG.

BY ALLEN R. TAYLOR, M.D.,
 Plano, Ill.

Although not usually in favor of ambulatory splints, I must say that in the case now reported I have been more than pleased with the results obtained. Though much has been said in the past condemning their use, it may be worth while to hear of the results from the use of the ambulatory pneumatic splint, applied on a fractured limb, in the excessive heat of mid-summer.

The patient, Edward S., aged nineteen, height six feet two inches, weight one hundred and seventy-five pounds, on July 15, 1904, had fracture of both bones of the lower third of the right leg. There was considerable contusion over the anterior surface of the tibia. I applied a Levis pos-



terior tibial splint, made firm by bandages above and below the fracture, leaving the field of contusion open for inspection and treatment. On the second day it was found necessary to dress the contused parts. The ambulatory pneumatic splint was applied on July 18. The result was that before I left the house he was standing up with no discomfort whatever from the fractured leg. In a few days he was able to walk and move around from place to place with perfect ease.

In one week from the date of fracture he could get around at his will, with a crutch. At first the swelling was considerable when he attempted to walk, but about July 29 there was no swelling of any account. On August 8 everything was in perfect apposition.

On August 18 I saw him again, and re-adjusted both splints as they had become movable on account of so much walking. The swelling was entirely gone, except in the foot. On August 28 I removed the ambulatory pneumatic splint and instructed him to wear only the Levis splint for a few days.

He has made a perfect recovery, with comfort and convenience during the confinement.

The accompanying cut shows the advantages of the apparatus. The four rods are adjustable as to position and length, and can be fitted to either limb. The pads at the hip and ankle are pneumatic, and can be either tightened or loosened at will with an ordinary bicycle pump. In this case the two pads above the knee were buckled tightly so as to have the weight come above the knee during walking. The ankle pad is secured over the Levis splint and tightly laced, then the strap and the heel extension are buckled on either side, to make any traction necessary, even for hip fractures. The fourth pad, being placed just below the knee, secures the Levis splint and helps to retain the limb from any side-play which could otherwise take place.

It is not necessary with this splint to do much bandaging, as the pads hold the parts perfectly in apposition. This, later on, permits massage treatment.

Although I have not had occasion to use the hip extension, I feel sure the hip could be immobilized the same as the leg. At the same time, sufficient extension or traction can be made from the heel straps and pads for any hip fracture.

A NEW MATERNITY GOWN.

BY H. LOWENBURG, A.M., M.D.,

Lecturer on Pediatrics at the Medico-Chirurgical College;
 Assistant Pediatricist to the Medico-Chirurgical and
 Philadelphia Hospitals; Pediatricist to St.
 Joseph's Hospital Dispensary.

The gown shown in the accompanying cut has been employed by me for the past two years in maternity cases, and in medical and surgical cases where undue handling of the patient might have been dangerous.

Immediately after delivery, and in typhoid fever with hemorrhage, absolute rest of the patient is necessary to prevent further bleeding. In fractures of the lower

extremity the same condition of immobility is essential, as well as in the after-care of plastic operations upon the female genital tract. Those patients to whom I have recommended its use, as well as the nurses who have had experience with it, report it an unusual comfort and convenience.

The cut shows a back view of the gown. The garment consists of two distinct pieces—similar to an ordinary nightdress cut in half. The front is secured half-way down with buttons and two tapes, which are shown tied. In back, each side is supplied with five tapes, placed opposite each other, as indicated. The second and third tapes, made sufficiently long to encircle the patient, may be tied in front. The tapes (in the cut) are numbered in rotation in the back, to indicate their position opposite each other; their relative length is also shown.

To adjust the gown the patient is placed, of course, in the prone position. The first half of the gown is put on the patient. The second half is then adjusted. The buttons in the front are then secured, and the two front tapes are tied. The nurse then places her hands beneath the patient's neck and secures the top tapes. Slightly pressing down the bedding under the patient, the nurse takes hold of the second and third tapes of the right half and pulls them under the patient and up over the left side; in front. She repeats this with the second and third tapes of the left side, bringing

them up over the right side of the patient in front. The tapes are then tied in front in a bow-knot. The last two tapes are tied in back by the nurse passing her hands under the patient.

During this entire maneuver the patient has not been moved at all. If there is much vaginal discharge or bleeding, the fourth and fifth tapes may be left untied, and a pad placed under the buttocks; the gown is not soiled. If it be desired to use a bedpan or to give a vaginal douche, it is necessary only to untie the last two tapes and to pull the gown to either side right and left.

Many little uses and conveniences suggest themselves to the experienced nurse as she gains experience with the gown. The gowns may be made very easily by either patient or nurse, or they may be purchased, at small cost, from Kaufman & Rubin, of Philadelphia.

ACETOZONE IN GENERAL SURGERY.

By JAMES H. FORD, M.D.,

Professor of General Surgery, Central College Physicians and Surgeons; President International Association Railway Surgeons; Indianapolis, Ind.

After an extensive experience with the use of acetozone solutions in general surgery for a period of over a year, I am convinced that it has qualities which make it of value in general surgery where suppuration is encountered.

This chemical substance is one of the higher peroxides, and exerts its peculiar properties when brought into contact with moist organic matter. It is soluble in water, and when in solution hydrolyzes rapidly and breaks up into less complex compounds. Acetozone is chemically known as benzoyl-acetyl-peroxide, and as a result of its hydrolysis in water we find hydrogen-acetyl-peroxide, hydrogen-benzoyl-peroxide, acetic and benzoic acids, and dibenzoyl-peroxide, all in solution.

As the literature is replete with evidences of the germicidal power of acetozone, it is not necessary to recount these statements, but I will deal only with my own experience in the practical application of the drug in appropriate cases.

It has been my custom heretofore in treating suppurative cases to wash out the cavity or suppurative tract with solutions

of hydrogen peroxide, afterwards removing the peroxide with distilled water. Investigations have disclosed the fact that acetozone has a germicidal power much greater than hydrogen peroxide, and at the same time it is harmless, whereas hydrogen peroxide is known to cause a destruction of infected tissue which has lost its tone, due to its exposure to pus and pus germs. It occurred to me to substitute acetozone for the hydrogen peroxide, which I have done in a great many cases. I now use it in every case where infection has occurred.

I have used it in a variety of ways, administering it as I would hydrogen peroxide. I have prepared the solutions when needed for injection into pus tracts (fistulæ) by dissolving from five to ten grains of the powdered acetozone in from six to eight ounces of warm distilled water, then injecting this solution into the fistulous tract with a glass syringe, allowing it to remain in contact with the affected area; after a short time washing out the chemical with distilled water. I find that acetozone used in this manner acts very well. In some cases I have used as an irrigating fluid large quantities of a weaker solution made by adding fifteen grains or two quarts of water. My experience has taught me that there is no destruction of tissue, no damage to adjacent parts, and complete sterilization of the infected tract or surface and ready healing of the parts by the use of acetozone in the manner indicated.

The following histories of several cases in which I have used acetozone may be of interest and illustrate the practical use of acetozone solutions:

CASE I.—Mrs. R., married, aged forty-five years. Very large woman, weighing nearly 250 pounds. Consulted me for relief from an umbilical hernia of some years' duration. Typical operation for relief of this condition performed. Enormous panniculus adiposus. A fistulous tract developed, discharging pus in small quantities. Many antiseptic substances were used without result. Sterilized the fistulous tract with injections of strong acetozone solution. Vivified the surfaces with a sharp spoon. Complete healing of the tract resulted in two weeks. Patient discharged from the hospital cured.

No question in this case about the value

of acetozone in destroying the pus-producing germs and allowing the tract to heal.

CASE II.—Mr. M., married, aged fifty years. Had been suffering with a tubercular knee. Attending surgeon had amputated the thigh through the middle third. Through some unknown combination of circumstances the wound was not dressed for some days; then the case was referred to me and sent to the hospital. Inspection showed an extensive infection in the stump. The flaps had sloughed badly, and the entire field of operation was bathed in foul-smelling pus. Patient delirious, running high temperature (105°), pulse and respiration accelerated. Typical picture of toxic absorption from the infected operation wound. The end of the femur was exposed, and reamputation was considered unavoidable. The first thing to do, however, was to clean up the field of operation and render it as nearly aseptic as possible. Irrigations of acetozone solution were immediately begun and continued twice daily for a week; then daily for four weeks. Meanwhile wet dressings of weak acetozone solution were applied between the irrigations. The results were marked and most gratifying. The extremely unpleasant odor was stopped almost immediately. The pus rapidly became thinner and less abundant, so that a week after coming into my service the flaps were drawn together, using tension sutures of heavy silk and interrupted sutures of silkworm-gut, bone covered, and the reamputation which was feared was rendered unnecessary. Five weeks after being put on acetozone treatment the patient was discharged cured, possessing a nice stump which would serve a useful purpose in fitting an artificial limb.

CASE III.—Mr. F., married, aged fifty years. Suffered from tuberculosis of the trochanter and the upper portion of the shaft of the femur. Case of thirty-three years' duration. Fistulous tract discharging very offensive pus, frequently streaked with blood, and occasionally a piece of dead bone came away. Operation performed, and a large quantity of dead and infected bone removed. The wound was irrigated daily with acetozone solution. The result was that the odor quickly diminished, and at this time, six weeks after operation, discharge has almost entirely ceased.

CASE IV.—Mr. F., aged twenty-five years; college athlete. Hand badly crushed in a railroad wreck. Was referred to me for amputation. Found the wound badly infected and amputation apparently necessary. Owing to my own inclination and the patient's expressed wish to avoid a mutilating operation, we tried conservative treatment. Strong acetozone irrigations were used to completely sterilize the wound, allowing small conservative operations to be performed, with the result that the patient has now been discharged, his wound completely healed, and the use of his hand preserved.

CASE V.—Mr. N., aged sixty-two years. Case of ununited fracture of the femur, the result of a compound fracture occurring some time previously. When the patient came under my care there was a fistula discharging pus, and the examination showed dead bone at each end of the fracture. The fistula was filled with strong acetozone solution, sterilizing it and stopping the discharge, and later an operation was performed, removing the dead bone and wiring the revived ends, the result being completely successful.

These cases will illustrate the method of application and the result of the use of acetozone in general surgery. Many others could be cited, but these will answer the purpose of illustrations as well as a larger number. I am of the opinion that acetozone is a valuable aid in the treatment of suppurative cases occurring in surgical practice.

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OINTMENTS, THEIR USE AND ABUSE.

In an article on this subject in the *Journal of the American Medical Association* of August 20, 1904, BULKLEY speaks of the indications and contraindications for the use of ointments. He says that it is not always an easy matter to know just the exact indications for the employment of this or that kind or strength of ointment, or for any ointment in preference to some other kind of dressing, and disappointment will occasionally follow the best directed efforts. In some acute inflammatory conditions of the skin

lotions and powders suit far better than ointments of any kind, while in the more chronic conditions, with dry, rough skins, ointments are, of course, called for.

The exact kind and strength of ointment can be determined only after a careful study of the skin, the lesions present, and their acute or chronic state or condition, and also after a full appreciation of the character of the skin of the individual under treatment.

In general, a thin, delicate skin, especially in one with a light complexion and hair, will bear and require much milder applications than thick, tough skin, especially in a brunette.

The single or localized patch of chronic eruption will, of course, bear and require much stronger applications than an acute or generalized eruption. While the sensations of the patient will commonly determine the continuance or disuse of an ointment, and great harm is not often done by too strong applications, our efforts should undoubtedly be directed to securing an application which will be effective and accomplish the end desired, if that be at all possible.

Every point in a case should therefore be carefully weighed and the indications and contraindications looked for and appreciated, before determination is made as to the proper ointment to apply. The almost universal use of zinc ointment is largely explained by its relative harmlessness, on the principle of the Irishman's holy water, who explained that "if it does you no good, it will do you no harm." This, however, is a poor principle to go on in the treatment of diseases of the skin, which often require very active measures for their removal; and, as before remarked, he is very poorly equipped for their treatment who knows only zinc ointment.

In concluding his brief practical notes on the use and abuse of ointments, for the general physician, the writer utters the caution that only one side of the great subject of the treatment of diseases of the skin has been considered, and one which is often the least important. All local measures are constantly found to be ineffective unless proper and adequate internal and general treatment is adopted and earnestly and faithfully carried out.

The Therapeutic Gazette

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Leading Articles.

THE TREATMENT OF TYPHOID FEVER.

To discuss the treatment of typhoid fever in the editorial columns of the THERAPEUTIC GAZETTE may seem to our readers to be devoting space to a subject which has been already so thoroughly threshed out that little more can be said concerning it. Notwithstanding the fact that next to tuberculosis and pneumonia this malady is treated by a larger number of our readers than any other disease, it is also true that even at the present time there is no consensus of opinion and no definite plan carried out by the vast majority of the profession. This is in part due to the fact that some practitioners do not recognize it as a universal infection with local lesions in the intestine, but regard it, on the other hand, as an intestinal condition with secondary lesions elsewhere. The result of holding such views is to indorse the action of those physicians who claim to get excellent results from the employment of intestinal antiseptics. We have more than once pointed out that any intestinal anti-

septic which is strong enough to destroy typhoid bacillus is also strong enough to do damage to the patient, and the fact that the blood and other tissues of the body are thronged with bacilli during the progress of this disease forces us to recognize that even an active intestinal antiseptic can at best deal with only one phase of the malady.

Another reason for differences in the methods of treating this disease lies in the fact that the severity of the infection and the vital resistance of the individual produce remarkable variations in its manifestations and in its mortality-rate. The consequence of this is that certain physicians who have to deal with mild epidemics employ a plan of treatment, have a large number of recoveries, and place the low mortality to the credit of their treatment, failing to recognize that the patients would probably have gotten well with good nursing had any sensible plan been instituted. Laboring under this misapprehension they report in one of the journals a hundred, or more, cases of typhoid with low mortality, and so lead other practitioners to follow the plan which they have instituted. Later, when they come in contact with an epidemic characterized by virulent infection, they find that their vaunted plan fails, but in the majority of instances they certainly do not report its failure, and consequently their words of praise continue to circulate when their knowledge of failure stops with themselves.

Our attention has once more been called to this important matter by the Bradshaw lecture, delivered before the Royal College of Physicians, of London, by Dr. Caiger, in which he exhaustively considers the modern methods which are employed for the treatment of this disease.

It is probably known to most of our readers that within the last few years an attempt has been made to treat typhoid fever by a specific plan, the hope of cure being based upon the remarkable results which have followed the employment of antitoxic serum in the treatment of diphtheria. Up to the present time the various plans of specific treatment have, however, failed, and failed chiefly because the symptoms of typhoid fever are not developed until after a period of incubation lasting approximately two weeks, during which time the disease has been continually de-

veloping in the patient, so that when he first comes under observation he is far beyond that stage which corresponds to the period at which antidiphtheritic serum is commonly employed. Further than this, diphtheria is primarily a local condition with secondary systemic toxemia; whereas, as we have already said, typhoid fever is primarily a general condition with secondary local lesions. Again, it has been practically impossible to develop an anti-typhoid serum, for even after the horse has been treated with repeated inoculations of typhoid virus, his serum in no sense possesses antityphoid units, although its bacteriolytic power may be increased.

The nearest results to success with which we are acquainted in this direction are those which have been obtained by the renowned French investigator, Chantemesse, who has reported at the Seventh French Medical Congress held in Paris in October, 1904, statistics of 545 cases of the disease treated in this manner with a mortality of 4 per cent, while other investigators using the same serum, with a smaller number of cases, have had a mortality of 8.7 per cent. When we recollect that the mortality of typhoid fever to-day averages about 15 per cent, and that under good nursing and the cold-bath treatment it frequently is as low as the figures quoted from these French sources, it at once becomes evident that even the most favorable statistics vary but little from those which are frequently obtained in hospitals in this country, and even more commonly obtained in private practice.

So far as the employment of attenuated cultures of the typhoid bacillus for the purpose of producing immunity is concerned, according to the plan of Dr. Wright, of Netley, it may be said that while this method has seemed to diminish the frequency of typhoid fever in those who are exposed to the infection, it has not given sufficiently good results to make its employment popular, since most persons prefer to run the risk of the true infection rather than to subject themselves to the discomfort of the injection and the temporary illness which follows it.

In connection with the antipyretic treatment of typhoid fever, we have always held that the fever in itself was not necessarily evil unless it amounted to a hyperpyrexia, but that it was simply a manifestation or

symptom of the infection which often gives us valuable information as to the condition of the patient. We are therefore glad to notice that Dr. Caiger is opposed to the employment of the coal-tar products for the reduction of the fever, although he considers that quinine possesses certain advantages for this purpose. In accord with most modern clinicians he is an advocate of the employment of cold, and expresses the belief, which is undoubtedly correct, that the fall of temperature which follows the application of cold is not so advantageous to the patient as the reaction and restoration of a normal circulation which it produces. The employment of the ice cradle or the graduated bath has never appealed to us, and we never employ it, since we believe that while the temperature may fall under its use, the tonic and reactive influence of cold is not obtained.

In connection with antiseptic treatment the point is well taken that a certain number of so-called gastrointestinal antiseptics do diminish fermentation and diarrhea—in other words, that the use of these drugs may diminish the rapidity of development of the associated microorganisms which have much to do with the production of tympany and diarrhea in this disease. If intestinal antiseptics are used as symptomatic remedies, there can be no objection to their employment, provided they are of such a nature as not to disorder digestion or materially increase the labor of the kidneys; but they are certainly contraindicated if they exercise any of these evil influences.

Caiger advocates the employment of sulphurous acid in 20- to 30-minim doses every two or three hours, advising that it be given in an ounce of chloroform water, with the addition of 15 minims of syrup of lemon. But he also believes that the oil of turpentine plan of treatment, which was so strongly recommended a half-century ago by George B. Wood, possesses even greater value. Of all forms of intestinal antiseptics which he advocates, however, he speaks most strongly in favor of the essential oil of cinnamon, although he admits that the number of cases (147) in which he has employed it are not sufficient to justify him in presenting conclusive statistics, his mortality being 9.5 per cent. He believes that under its influence the temperature is moderated, the patient is com-

fortable, tympanites is diminished, and nervous irritation is subdued. But, on the other hand, he admits that the drug sometimes produces nausea and vomiting. The dose which he uses is from two and a half to five minims of the essential oil of cinnamon, given every two hours throughout the treatment, and every four hours during the first week of convalescence. During the second week of convalescence it is given three times a day. Most of the volatile oils have antiseptic properties, and our readers may remember that recently an Australian clinician has strongly advocated the oil of eucalyptus for the same purpose. Caiger states that in those cases in which there is much mental disturbance, the oil of cinnamon acts as a very useful cerebral sedative at these periods.

In connection with the subject of perforation he advises immediate operation as soon as the diagnosis is made without waiting for the period of twelve hours to elapse, which has been advised by certain surgeons, in order that recovery from primary shock may occur. Statistics show that the danger of performing an operation during the stage of primary shock is less than that which accrues, from the presence of an infective process in the general peritoneal cavity, in a few hours after the perforation has occurred.

THE USE OF OXYGEN IN ASSOCIATION WITH THE ADMINISTRATION OF CHLOROFORM AND ETHER.

The proposition that oxygen should be administered with chloroform and ether for the purpose of preventing accidents during the maintenance of their effects, and for the purpose of preventing untoward sequelæ, was received by the profession, about fifteen years ago, with considerable enthusiasm. For a time surgical instrument makers busied themselves with the manufacture of special inhalers whereby the patient would receive the vapor of ether or chloroform mixed with oxygen gas, and in not a few instances these inhalers were so devised that the patient was for the time being forced to exist under the mixture of ether vapor and oxygen gas, having been deprived by a tight-fitting inhaler of all atmospheric air. In most of these necessarily compli-

cated forms of apparatus the oxygen gas was supplied through a tube, which first passed through the anesthetic. It was therefore impossible for the anesthetizer to increase or decrease the anesthetic vapor without at the same time increasing or decreasing the oxygen gas. This was a serious disadvantage, and as we have pointed out on several occasions, the proper way to employ oxygen gas, with either of these anesthetics, is to have the gas delivered through a tube which can be passed under the ether cone and chloroform inhaler, and through which oxygen gas may be supplied in varying quantities without changing the amount of anesthetic which the patient is taking into his lungs.

The object of this editorial note is to reiterate our belief in the value of oxygen in conjunction with surgical anesthesia, to impress upon our readers the disadvantage of employing a complicated inhaler when the simplest form of inhaler can be used to better advantage, and to call attention to an interesting experimental research which is published in the *Medical Record* of November 19, 1904, by Dr. James W. Gwathmey, in which he proved by experiments upon animals that chloroform with oxygen gas is more than twice as safe as chloroform and air, and he believes safer than any other anesthetic with air; or, to express it otherwise, he believes that if oxygen is used with chloroform it becomes as safe as ether. More important still, he concludes that oxygen decreases the danger of anesthetics, as regards life, without decreasing their anesthetic value.

THE POSTOPERATIVE RESULTS OF SURGICAL PROCEDURES.

In the mind of the physician of experience there can be no doubt that a surgical operation exercises an effect upon the human body far beyond that manifested by the wound which is produced. The latter is the direct effect of the operation, and under the aseptic procedures of modern surgery is soon closed, leaving a scar which is often difficult to discover. The effects on the general system are, however, in many instances far more lasting; their degree and duration depending largely upon the condition of the patient

at the time of the operation, and the gravity of the surgical interference. We therefore find that postoperative effects are most marked in women in the upper walks of life, and in nervous, high-strung men whose nervous equilibrium is disturbed for long periods of time by severe shock. This shock is not that state which is commonly given this name immediately after an operation, but is that indefinite condition in which the nervous balance is seriously disturbed for many weeks. We mention these facts because they have been frequently impressed upon us by practical experience, and because, as a rule, they are unrecognized or ignored by surgeons, who are wont to return patients to the physician with the statement that operative recovery has ensued, which is true in one sense and untrue in another. In some instances where women have suffered from more or less distressing pelvic difficulties, a focus of disease has been removed, and a hyperesthetic scar has remained, which, combined with the loss of nervous equilibrium, has made the second state of the patient worse than the first.

In a large number of cases this postoperative effect can be prevented by the exercise of great care in the administration of the anesthetic, and by the maintenance of bodily heat during the operative procedure. These two factors perhaps exercise a greater influence upon the system of the patient than does the incision and manipulation of the abdominal viscera. Again and again have we seen ether administered so carelessly that the patient suffered an agony of terror before becoming unconscious, and struggled so violently as to produce great exhaustion. When we remember the nervous shock produced in a healthy individual by a fight for life, and consider that this fight is just as real to the semi-conscious patient as if it was a matter of vital importance, it is not hard to conceive how the addition of an operative manipulation may produce a nervous shock which will last in its effects for months.

We are glad to notice in *American Medicine* of November 19, 1904, that Dr. J. Riddle Goffe, of New York, a gynecologist of experience, contributes a paper upon this important subject which cannot be too much impressed upon both special and general surgeons.

ACCIDENTAL HEMORRHAGE.

At the seventy-second annual meeting of the British Medical Association, the Section on Obstetrics and Gynecology assigned for discussion the subject of the treatment of accidental hemorrhage, meaning by this title bleeding occurring during parturition so profuse as to threaten life. Since this discussion was participated in by the leading obstetricians of England, the conclusions derived from it may be considered as representative of the beliefs of the profession at large concerning the treatment of this alarming and fatal complication of labor.

The discussion was opened by Sir Arthur Vernon Macan, who, after alluding to the fact that there is no question in the whole range of obstetrics about which such opposite views are held by masters of the art, concluded that the reason for this is incident to the fact that a really satisfactory form of treatment has not yet been found. As a personal belief based on successful experience, he expressed the view that a systematic plugging of the vagina combined with the application of a firm binder and perineal bandage offers an efficient method of treating all cases of accidental hemorrhage, excepting the most violent ones; and perhaps even these, if the hemorrhage can be arrested without emptying the uterus. The latter should be emptied before the patient succumbs, and in whatever way is most likely to cause least rupture of the soft parts, with the consequent postpartum hemorrhage and shock. Opium is advised as a means of quieting the heart's action.

Smyly calls attention to the fact that vaginal plugging excites labor pains, and increases the dilatation of the os. It also causes increased intra-uterine tension.

Purefoy believes that this method is capable of controlling the worst forms of internal hemorrhage. The plugs used are small tampons of sterilized cotton about the size of a walnut. These are soaked in lysol, creolin, or perchloride of mercury. After thorough cleansing of the parts, as for an obstetrical operation, a catheter is passed, and the plugs are put in position with the purpose of forming a ring around the cervix. The packing is continued systematically downward until no more can be introduced into the vagina.

The operator then places a strip of iodoform gauze over the plug which will be projecting from the vagina, and secures this in place with a T-bandage. The abdomen is then bandaged very tightly with a binder from above downward. Of the forty-three cases treated in this way, only three died.

Rupture of the membranes makes it more difficult to secure intra-uterine tension by plugging, hence such a rupture is not good treatment for the ordinary case of accidental hemorrhage, unless the latter be due to a persistence of the bag of waters far into the second stage, or to a low insertion of the placenta.

Gallabin, of Guy's Hospital, called attention to the fact that a comparison of statistics of the treatment by vaginal plugging with that of fifty years ago, when the treatment was by early puncture of the membranes and accelerated delivery by forceps or version, shows a less number of deaths from hemorrhage by the earlier method.

Kerr, of the Glasgow Maternity Hospital, strongly favors vaginal plugging, on the basis that nature herself takes care of a certain proportion of these cases. Together with a majority of the profession he favors the emptying of the womb in severe cases. On the basis of a somewhat limited experience he distinctly favors Cæsarian operation.

Byers, professor of midwifery in the Queen's College, Belfast, believes that all must admit a good case has been established for the plugging of the vagina, with the addition of an abdominal binder and perineal bandage, in those cases of exceptional hemorrhage where blood escapes externally, and in which labor has not yet set in. The admirable statistics of the Rotunda Hospital are cited as most conclusive evidence of the merits of the method.

Campbell is also an advocate of plugging, though he begins it, when dilatation is insufficient to admit of delivery without force, by packing the cervix as well as the vagina. He believes that at present plugging the cervix and the vagina gives the best results in all cases which can be delivered at once and with ease; and that forced delivery and Cæsarian section are almost equally likely to fail in the desperate cases. He believes that the question before the profession is whether Cæsarian

operation will not come to be the routine treatment for all the more serious cases in which the cervix is not well dilated, rather than remain the last resource in cases which are almost beyond hope.

Nicholson advises for the troublesome dribbling of blood that sometimes occurs after delivery, packing of the vault of the vagina with iodoform gauze wrung out with adrenalin solution, and the submammary injection of normal saline solution containing adrenalin.

Heywood Smith advises that the plugs should be of sterilized wool, and should be made the size of the fist.

In this discussion is further evidence of the conservative tendency of some of the leading obstetricians of England in regard to the treatment of a complication of labor which, though exceptional in itself and comparatively fatal, usually calls on the part of the American practitioner for prompt surgical intervention.

SURGICAL TREATMENT OF CHRONIC DYSENTERY.

The practice of subjecting inveterate cases of dysentery to through-and-through colonic irrigations by means of an artificial opening made into the large bowel at or near the position of the cæcum is a procedure which naturally suggested itself by the post-mortem lesions found in the fatal cases, and one which has been adopted many times, and apparently with a gratifying degree of success, if conclusions drawn from the scattered published cases can be considered convincing. It will be borne in mind that Weir proposed a most ingenious modification in surgical technique, in that he apparently discovered a useful function for the appendix. In place of performing a colostomy in persistent dysentery, he advocated the suturing of the appendix to the parietal wound, and the utilization of this organ for the purpose of practicing through-and-through irrigations. Such a procedure is an extremely simple one, and leaves an opening which is easily and safely closed by subsequent operation.

Macdonald (*New York and Philadelphia Medical Journal*, Nov. 5, 1904) reports two cases in which chronic dysentery was treated by surgical methods. The first one had lost 60 pounds in weight, and had been subject to most faithful

treatment by high enemata, antiseptics, astringents, and opiates by the mouth, and by careful regulation of the diet. The disease had lasted about seven months when he was operated upon. Through a colostomy opening potassium permanganate irrigations were practiced twice daily. Two gallons of 1:10,000 solution were used. The patient's recovery was complete, though some difficulty was experienced in closing a fecal fistula. The second patient had suffered from dysentery for three years. He had lost over 70 pounds.

As a result of this experience Macdonald concludes that all chronic cases of dysentery should be operated on at once. He expresses a prophecy to the effect that the operation of colostomy will in the future be just as common as wiring a fractured bone.

Although the tendency of medicine is steadily toward surgery, it is to be doubted that the practitioner will recognize the need for a prompt opening of the bowel in dysenteric cases until at least a prolonged and faithful trial of approved medical methods has proved absolutely futile.

Reports on Therapeutic Progress

URANIUM IN THE TREATMENT OF LUPUS.

In the *Scottish Medical and Surgical Journal* for September, 1904, WALKER writes on this topic. He states that some months ago, in looking over some of the numerous journals which came under his editorial notice, his attention was attracted by a series of skiagrams taken by prolonged exposure to a couple of old incandescent gas mantles. These consist mainly of thorium, one of the feebly radioactive metals.

In a now considerable experience of radiotherapeutics he has constantly felt the responsibility that lies on the administrator in the narrow margin between doing enough and doing too much. It is not easy in treating large numbers of patients to insure that a half minute more or less than is prescribed is not administered, and yet the difference is important. In the use of the rays on a large scale one has to be constantly on the watch, and it is only

large experience that enables one (and that not always) to decide whether treatment may be continued in spite of a certain amount of reaction, or whether it must be given up for a time. When radium is used the margin of safety is wider, though here too all workers are agreed that the effects are curiously varied.

And there is a further consideration which deserves more attention than it generally receives, viz., the time occupied by the patients in waiting their turn for treatment. They have tried many time-table systems, but none of them has prevented considerable loss of time. It is all very well to say that the treatment is so important that this need not be considered. But most hospital patients have to make their living, and when one reckons in addition to the time spent in hospital that occupied in coming and going, it is obvious that a lenient employer is a very important factor in the treatment.

The author therefore resolved to investigate the therapeutic action of thorium, and set about designing methods of its application. In Mr. Alexander, principal dispenser to the Royal Infirmary, he found a most enthusiastic coworker. After a short trial of thorium they discarded it in favor of uranium, which is much more radioactive.

An oxide of uranium is first prepared from one of the readily obtainable salts, such as the nitrate, and incorporated with a negative base, e.g., rosin or beeswax. The plaster leather having been prepared, a layer of the plaster of the usual thickness is applied of any desired extent. This is quickly covered with waxed paper gummed at the edges to enclose it completely.

Arguing from the photographic effects, he concluded that if one took five minutes as the mean exposure to the x -rays, and an hour as that of the specimen of radium which is in use in their department, it was apparently safe to make very prolonged applications of the uranium plaster without any appreciable risk.

The author used it in the first instance on cases where the limbs were affected, though, of course, well aware that these form no very severe test of any remedy. The results were very gratifying, patches of fibroid lupus on the arms improving steadily under the plaster. At first he

applied it for twenty-four hours only; later applications of as much as three days and nights were found to be followed on the arm by no reaction. On the face, which was next treated, it was found that a slight reaction followed in some cases when the exposure exceeded twenty-four hours. But since the plaster is a somewhat prominent form of dressing, it is now his custom in out-patients to direct that the plaster be applied at night and removed in the morning. At first he applied it directly to the lupus, but the discharge soiled and tended to crack the plaster, and having satisfied himself by skiagraphs that there was no interference with the rays he now encloses the plaster in waxed paper. The plasters may be used for months without losing their activity, a matter about which he was for a time in doubt.

The success of the application is very encouraging; apparently the risks are negligible, and the convenience to the patient is great. Lastly, the method has the great merit of economy. Mr. Alexander's estimate is that the plasters can be made for the sum of one shilling. As their experiments show that a plaster is quite active after four months' use, it may be admitted that it will be hard to find a cheaper method of treating such cases of lupus as are suitable for it. The author hopes to publish more results later.

HYDROTHERAPY IN SCARLET FEVER.

MARSDEN writes in the *Medical Chronicle* for September, 1904, of his experience with this plan of treatment. He thinks there is no need for him to emphasize the close association which has been proved to exist between the kidneys and the skin. It would be surprising if the dry, scaly, and even eczematous condition of the latter, which is especially seen in severe, protracted, and septic cases, did not prejudicially affect the kidneys. Under these circumstances it may be that careful investigation would demonstrate rather a prophylactic influence, from the hydrotherapeutic treatment, against the super-vention of nephritis. It would indeed be interesting for the elucidation of this point to have a large number of cases treated in an exactly similar manner, save that one-half received regular and frequent tepid

or cold baths with friction, whilst the other half received only the usual and necessary ablutions for cleanliness. If such an observation has been made there seems to be no record of it. In three of the cases, after a cessation from the administration of the baths lasting several days, on the recurrence of pyrexia subsequently they were immediately resumed, and in one of these cases there followed a very temporary hematuria and albuminuria. Its failure to occur in the other two cases, and a knowledge of the vagaries associated with the methods of onset of nephritis in scarlet fever, cause the author to look upon this occurrence as accidental. From the fact, however, that any pyrexia subsequent to the second week connected or not with other local evidences of inflammation (adenitis, tonsillitis, etc.) may, after a variable period, be accompanied by signs of nephritis, the author does not believe pyrexia occurring after the period mentioned, when following an apyrexial interval, should be so treated, and is further strengthened in this belief by the fact that in these late pyrexial attacks, whatever may be their cause, the degree of temperature attained, or the length of time it lasts, rarely constitutes an important or dangerous factor.

From the references which the author quotes in his paper it is manifest that various beneficial effects have been described by different writers as the result of the application in the febrile state at the onset of scarlet fever of water at a temperature lower than that of the body. To him the most striking feature, and the one showing an immediate evidence of its action, was its sedative influence. In this respect it often acted in a manner remarkably similar to that met in typhoid fever, the patients falling asleep directly after the application.

Despite the fact that some writers are averse to cold baths on account of the danger of producing collapse, whilst others from a similar fear prefer them to continued lukewarm baths, it may yet be said that the consensus of opinion expressed is in favor of some form of hydrotherapy. To a certain extent the discrepancies in the statements may be only apparent, arising from different methods. If one considers the contraindications laid down by Leichtenstern and mentioned by

von Jürgensen concerning three of them (laryngeal stridor, hemorrhage, arthritis) there can be no difficulty. With the remaining point, however, the condition of the circulation, it is quite different. In accordance with the rule for abstention mentioned by Currie, viz., coldness of the extremities, or in the presence of cyanosis with a small, soft, rapid, running pulse, or with a temperature considerably below what ought to be expected from the general condition, one may feel that the indications are sufficiently clear for a general agreement. On the other hand, there must be numbers of cases on the border-land which have to be left to individual judgment, and in which the results of treatment will be followed by differences in experience.

From the evidence of Leichtenstern and Reimer we may accept the conclusion that short cold baths frequently repeated give the greatest benefit, so that where there is no danger of producing cardiac failure, they, or such substitutes as the cold pack with friction, the cold mitten, or ice rub rapidly performed, are to be adopted. In doubtful cases, however, and in young or weakly patients the lukewarm bath is to be preferred, and here again its duration should be short (ten to fifteen minutes), since, as stated by Reimer, a prolonged tepid bath causes a weak pulse and is decidedly injurious. Whatever the method used it is nevertheless necessary that the applications should be regularly and frequently repeated during the period of pyrexia or marked toxemia, and that each application should be adequate to the severity of the case.

THE EFFECT OF ALCOHOL AND ALCOHOLIC FLUIDS UPON THE EXCRETION OF URIC ACID IN MAN.

To the *American Journal of Physiology* for September, 1904, BEEBE contributes the result of an original research on this subject.

After a consideration of his experiments, it hardly seems possible to doubt that alcohol, even in what is considered by the most conservative as a moderate amount, causes an increase in the excretion of uric acid. And this effect is seen almost immediately after taking the alcohol.

The following points indicate that the effect is due to a toxic effect on the liver, thereby interfering with the oxidation of the uric acid derived from its precursors in the food:

1. Alcohol taken without food causes no increase.

2. There was a smaller increase in excretion in one experiment in which the diet contained much less purin food than it did in another experiment.

3. The maximum increase occurs at the same time after a meal as it does when purin food but no alcohol is taken.

4. The purin bases are affected to the same degree as the uric acid.

5. Alcohol is rapidly absorbed and passes at once to the liver, the organ which has most to do with the metabolism of proteid cleavage products.

There is no evidence that the alcohol has merely hastened the excretion of urates normally present in the blood; the increased excretion means that a larger quantity has been in circulation, and although it is classed by Von Noorden among the substances easily excreted, still most physiologists would consider the presence in the blood of this larger quantity as undesirable. Certainly in pathological conditions it might be harmful.

If we accept the origin of the increased quantity of uric acid to be in the impaired oxidative powers of the liver, the results of these experiments will have greater significance than can be attributed to uric acid alone. For the impaired function would affect other processes which are normally accomplished by that organ, and the possibilities for entrance into the general circulation of toxic substances, of intestinal putrefaction, for instance, would be increased. The liver performs a large number of oxidations and syntheses designed to keep toxic substances from reaching the body tissues, and if alcohol, in the moderate quantity which caused the increase in uric acid excretion, impairs its power in this respect, the prevalent ideas regarding the harmlessness of moderate drinking need revision.

Alcohol is a food in the sense that when used in small quantities the energy from its oxidation may be used for some of the body needs; but since, at the same time, it interferes with the normal activities of a most important organ, its food value

may be overbalanced by its toxic effect. Salt water may be used in the steam-boiler, and the steam from its evaporation may transmit the energy of the fuel to the revolving wheels, but its corrosive action on the steel forbids its use, like alcohol, except in emergencies.

BATHING DURING THE MENSTRUAL PERIOD.

EDGAR concludes in the *American Journal of Obstetrics* for September, 1904, that all forms of bathing during the menstrual period are largely a matter of habit, and usually can be acquired by cautious and gentle progression, but not for every woman does this hold good, and surf bathing, where the body surface remains chilled for some time, should always be excepted.

A daily tepid sponge bath (85° to 92° F.) during the menstrual period is not only a harmless proceeding, but is demanded by the rules of hygiene.

In the majority if not all women, tepid (85° to 92° F.) sponge bathing after the establishment of the menstrual flow, namely, second or third day, is a perfectly safe practice.

Further, in most women the habit of using the tepid shower or tub bath after the first day or two of the flow can with safety be acquired.

THE USE OF BROMETONE IN DISEASES OF THE EYE, NOSE, AND THROAT.

J. J. KYLE says in an article on this subject in *Medicine* for September, 1904, that as a result of witnessing its action in many cases the author is convinced that it is a valuable addition to the materia medica. Brometone is well borne in all cases of gastric irritation with nausea and vomiting due to indulgence in alcohol or to gastric indigestion. The marked sedative effect of brometone shown in all these cases may be due to a local anesthetic, or more likely to the influence of the drug upon the medulla. This, however, is merely suggestive, and is yet to be determined definitely.

Brometone is especially indicated in cases of overstimulation of the nerves where the brain seems to be scintillating, due to excessive brain work. Brometone

acts well in cases of asthenopia nervosa and congestive headache from close application to work, or from the congestion of the frontal sinuses, or acute congestion of any of the accessory sinuses.

Following operations in the nose and throat, such as turbinectomy, cauterization, tonsillotomy, and the like, patients frequently complain of severe headaches. In this class of cases the author has found brometone of service. Prescribed in three-grain capsules every three or four hours, it promptly relieves the irritation and the nervous condition of the patient, and the headaches rapidly disappear.

CHOLERA INFANTUM.

In the course of an article on this subject in the *Annals of Gynecology and Pediatrics* for August, 1904, STERRETT states that there are two important conditions to be corrected at once if possible: the poisonous mass in the intestinal canal must be removed, the bowel made as near aseptic as it can be made, and the congestion relieved by running the blood to the periphery.

The old way of locking up the bowels with bismuth, paregoric, hydrargyrum cum creta, plumbi acetat, Dover's powder, etc., was to take what small natural power the little besieged one had, and hand it over to the enemy.

The diarrhea, being nature's way of getting rid of irritating matter, should not be checked by astringents, but by the use of sufficient doses of the sulphocarbolate of zinc to correct the fermentative changes going on in the bowels and check the further propagation of morbid bacilli.

To correct the vomiting and relieve the congestion, atropine or hyoscyamine is indicated and can be depended on to do what the galenical preparations do not accomplish because of their uncertainty.

After the administration of atropine sulphate gr. 1-250 in twenty-four teaspoonfuls of water—one such standard granule for each year of the child's age—every fifteen to thirty minutes, the vomiting usually ceases, the skin becomes warm and the circulation equalized. This must be done with just care enough to attain remedial results and no more, then stop the atropine.

But the sulphocarbolate should be con-

tinued until the ejecta lose their disagreeable odor and the movements become less frequent.

The only derivative of opium the author uses is codeine sulphate, which he combines with the atropine, especially when there is much pain—and there usually is a good deal. Pain is one cause of the failing strength of the little sufferer.

To assist the atropine in restoring and maintaining circulatory equilibrium and to give tone to the nervous system, he gives strychnine arsenate or brucine—the latter in very young children, perhaps, in preference to the more powerful alkaloid, although either is absolutely safe.

The regulation of the diet; the proper use of flannels for keeping the child's body warm; the attention to unsanitary conditions that most likely obtain about the premises; the avoidance of excessive heat from the sun and sudden draughts of cold air; fresh, pure air in abundance—all these adjuncts in the light of modern hygiene and scientific sanitation no physician will overlook.

The author impresses upon his colleagues the two main things necessary, as he believes they are of the utmost importance—the restoration of circulatory equilibrium by atropine or its salts, and the accomplishment of intestinal asepsis by the sulphocarbolates.

THE ACTION OF SALICYLATES ON THE URINARY TRACT.

The salicylates have been so widely employed and have proved of such distinct utility in the treatment of a large number of disorders, that the fact should not be ignored that they may give rise to irritation of the urinary tract, particularly the kidneys. Some observers have even reported the occurrence of nephritis and desquamative catarrh of the urinary passages from this cause. In order to convince themselves of the accuracy or otherwise of statements of this character, Dr. Carl Klieneberger and Dr. Richard Oxenius made a careful study of the urine from a large number of practically normal persons and from individuals suffering from rheumatic disorders, particularly polyarthritis, to whom later salicylates were administered. As a result of their observations they found that the admin-

istration of even small doses of salicylates gave rise to the urinary but not to other clinical phenomena of nephritis, and also to desquamative catarrh of the entire urinary tract, but that these disappeared with the continued administration of the medicament. Habituation to the drug did not appear to develop, as similar symptoms reappeared when the administration was resumed after an interval of a few days' omission. It appears that a toxic or febrile nephritis is present in the majority of cases of febrile rheumatic disease, and that this subsides under the use of the salicylates. On the other hand, the salicylates themselves give rise to a characteristic form of nephritis, from which recovery takes place as a result of their continued administration. [This would seem doubtful.—Ed.].—*Journal of the American Medical Association*, Aug. 20, 1904.

THE DIAGNOSIS AND TREATMENT OF HEMORRHOIDS.

J. COLES BRICK in *American Medicine* of July 23, 1904, writes an article on this theme. He points out that the treatment of varicose internal piles is both palliative and curative. In the palliative, every effort should be made to prevent prolapse and control bleeding. Rest in bed with astringent applications, or pressure with cold applications, will stop the bleeding. To prevent recurrence, the diet should be regulated and regular exercise taken, the skin kept active, the liver and portal system free from congestion; coffee and tobacco used very moderately; and the bowels kept soft. The following pill is of benefit:

Compound extract of colocynth,
Extract of cascara, of each .78 Gm.
(12 grains);
Extract of belladonna,
Extract of nux vomica, of each .2 Gm.
(3 grains).

Make in 12 pills. One or two at bedtime.

The use of cold water, or even ice water, taken as an enema and retained for a considerable time, is useful. An astringent, such as glycerol of tannin .32 gramme (5 grains), will assist in retaining the pile.

The suprarenal extract may be used as a suppository on retiring. The following

containing ichthyol is said to be of benefit:

Ichthyol,
Tannic acid, of each .32 Gm. (5 grains);
Ext. belladonna,
Ext. stramonium, of each .02 Gm. (1/3 grain);
Ext. hamamelis, .65 Gm. (10 grains).

Make into a suppository.

In cases in which there are three, four, or more large internal piles which have existed for a long time, the diagnosis is, of course, not hard, as the picture will be a relaxed sphincter with perineal edema, and strangulation of the pile mass, with great pain and irreducibility. In cases of this kind when operation is declined adrenalin may be used.

R. Lepine (professor of the Faculté de Médecine of Lyons) in his paper on "The Action of the Suprarenal Capsules" quotes M. Le Noir, who proposed the use of adrenalin in piles. M. Bouchard uses a tampon with a 1-to-1000 solution of adrenalin, followed in less than an hour by "décongestion." In one case strangulation and irreducibility were overcome. M. Mossi (Toulouse) has also used this procedure. M. D. Devilliers tried adrenalin on a woman of forty-six who refused to have an operation or to allow reduction of prolapsed hemorrhoids. He began by using half- to one-per-cent solution of adrenalin chloride on tampons. An hour after ischemia was marked, pain lessened, and on the following day after renewed application reduction was possible, and from this time there was no return.

The operative treatment for internal hemorrhoids may be either by injection, ligation, or the clamp and cautery. Various formulas have been used for the injection of hemorrhoids. Nearly all writers agree that the internal non-inflamed variety is the only proper one in which to use it. Terry uses the following method: "Rub together 4 grammes (1 drachm) of salicylic acid, and 6 grammes (1.5 drachms) of glycerin, and 8 grammes (2 drachms) of carbolic acid. To this add 4 grammes (1 drachm) of borax and 6 grammes (1.5 drachms) of glycerin. Let stand until clear, and inject 3 to 5 drops into small piles and 5 to 8 into large ones. Repeat every ten days." He never uses more than .12 cubic centi-

meter (2 minims) at any one point, but often injects several points at one visit.

Gant's formula is:

Carbolic acid,
Glycerin,
Distilled water, of each 3.75 Cc. (1 drachm).

Inject from 5 to 20 drops.

Tuttle uses Shuford's formula:

Carbolic acid (Calvert's), 7.5 Cc. (1 drachm);
Salicylic acid, 2 Gm. (1/2 drachm);
Sodium bichlorate, 4 Gm. (1 drachm);
Glycerin (sterile), sufficient to make 30 Cc. (1 ounce).

Never inject more than .6 Cc. (10 minims).

The author's experience with injection has been satisfactory in a number of cases, but the method requires much longer time than by operation, and frequently the subsequent removal under local anesthesia of leaf-like tabs. In selected cases of non-inflamed internal piles, when an anesthetic is contraindicated or an operation is refused, it has a distinct field.

HYPODERMIC INJECTION OF STRYCHNINE NITRATE IN THE TREATMENT OF PROGRESSIVE MUSCULAR ATROPHY.

SANGER BROWN in the *Medical Record* of August 6, 1904, writes as follows:

To whom belongs the credit of originating this method and first asserting or demonstrating its value is not known, but since it came to the notice of the author he has embraced every opportunity of using it, and while his results have not been so happy as Professor Gowers's, they have nevertheless been highly satisfactory in some instances, and prompt the author to publish his clinical notes. Furthermore, judging from conversation with his confrères, and the perusal of current medical literature, the author believes this measure of treatment has not received anything like the attention it deserves.

For an adult the dose should be 1/25 of a grain once daily for six weeks, resumed after an intermission of two weeks, and so on until several courses have been taken. Though many patients can bear a larger dose than this without exhibiting unpleasant symptoms, the author has had better results when he did not yield to the impulse sometimes experienced to administer a larger quantity. Possibly a certain

amount of the drug might act as a tonic, and restorative to the degenerating neurons, while more might accelerate the process of decay.

It appears that no other form of strychnine than the nitrate given hypodermically, and no form whatever, not even the nitrate itself, given by the mouth, can influence the course of the disease favorably. That the nitrate is a comparatively volatile substance, and that it is not exposed to the action of the digestive secretions, is somewhat suggestive of a possible specific incidence when given subcutaneously.

GOUT AND ITS TREATMENT.

In the *Medical News* of September 10, 1904, RANSOM states that cases of acute gouty arthritis are to be put upon a milk diet, the joints painted with what is called "joint special," a mixture composed of oil of gaultheria 1 drachm and ichthyol 1 ounce, and wrapped in cotton-wool, over which rubber protective or oiled silk is held in place by a roller bandage. Colchicine 1-100 of a grain is to be given every two hours. If the bowels are affected by the colchicine it is to be given at longer intervals. As a rule the colchicine can be continued at two-hour intervals for forty-eight hours or more. The inflammation and pain are usually controlled within this time, and after all acute symptoms have subsided the drug is to be continued at intervals of four hours until the patient is discharged.

In the chronic cases of gout the same method is employed as if there was inflammation in any of the joints. The joints which are stiff are massaged and given passive movements, and the patients directed to use the joints as much as possible. This is a most important thing to do, as the tendency of all these patients is to spare the joints, and the liability to permanent stiffness and disability is thereby very much increased. There is no danger of setting up a new attack in a joint if the manipulations are begun after all inflammation has subsided. A very simple apparatus may be employed which may be called a "teeter," and it is found to be most useful in limbering up stiffened knees and ankles. The "teeter" consists of a piece of board 21 inches long and 8 inches wide. About three inches from the

lower end another piece of board about 10 inches long is fastened to the first piece at right angles by means of a bracket. Upon the shelf so formed the foot of the affected leg is placed, the longer board being in contact with the posterior aspect of the leg. The patient then sits in a rocking-chair and rocks to and fro, thereby producing a greater or less amount of motion in the knee- and ankle-joints. Very soon the patient becomes accustomed to the apparatus, and can read while taking his exercise. It is an advantage over walking, as it not only keeps the weight of the body off the knees, but compels a much greater angle of motion. There is always a tendency on the part of a patient to fix the muscles so that the movement of the joint on manipulation is much more limited than is caused by the pathological changes in its structure. The use of the "teeter" eliminates this muscular rigidity, and the movements of the joints are only limited by the actual structural changes. By persistent use these are to a great degree gradually overcome.

It has often been said that colchicum should never be used in chronic gout, because it will do no good, that by continual use the patient will become accustomed to it, and its effects will be lost in event of an acute exacerbation. The author's personal experience with it in chronic cases is entirely contrary to this opinion. It has been found to be of the greatest service in clearing up the joint symptoms in these cases, and when an acute exacerbation has supervened, its prompt effect in controlling the paroxysm has in no way been diminished.

THE LOCAL USE OF QUININE IN HAY-FEVER.

In the *Journal of the American Medical Association* of July 30, 1904, FULTON advises this plan of procedure. He reminds us that so many remedies have from time to time been proposed for the relief of hay-fever that doubt has arisen as to the value of any of them, and very naturally so, for they all have one serious drawback—the uncertainty of their action.

A method of using quinine locally in typical cases of hay-fever has proved remarkably successful in the author's

hands. The treatment consists of the employment of a saturated solution of the quinine sulphate in sterilized water, as a nasal spray, and the application to the mucous membrane of the nares of an ointment consisting of quinine and vaselin in the proportion of 30 grains to the ounce, the applications being made every four or six hours. After trying various unguents and combinations, simple vaselin has been found to be the best base. The white vaselin is not suitable, nor is the liquid albolene. Lanolin is an ideal base, but is too offensive to the sense of smell.

The use of the spray alone will not suffice, but should be used as an adjunct to the ointment. Spraying the nares will at once stop all symptoms of coryza, but the effect will soon disappear unless followed by the thorough application of the ointment. This may account for the failure of this treatment as first suggested by Helmholtz, who employed only the spray. The application of the ointment should be made at least every six hours, and it may be necessary to repeat it every four hours. An application at bedtime, and at two or three o'clock in the morning, will prevent all symptoms through the night. Two or three applications of the spray should be made in the twenty-four hours, at the times when the patient has found the irritation to be at the maximum degree of intensity. In respect to the mode of using the ointment, the little finger is the most convenient applicator. In most persons the slightly bitter taste in the throat from the quinine is not objectionable, but where this proves to be a drawback to its use, euquinine, a synthetical product which is wholly devoid of any unpleasant taste, can be substituted, and will be found equally efficacious.

So far as the effects of this simple remedy have been observed, the results are as follows: Used according to the foregoing suggestions the symptoms of coryza are immediately removed, nor will they return so long as the treatment is continued. The usual accompanying irritation of the conjunctivæ, of the Eustachian tubes and palate quickly subsides. The writer has had no opportunities as yet to test this treatment in irregular types of the disease, or to estimate how far these results may be modified by individual peculiarities,

but so far as its effects have been noted it seems fair to conclude that this will be found a remedy of actual value in the treatment of hay-fever, and that it will promptly and completely relieve a large proportion of these cases.

TREATMENT OF ACUTE MIDDLE-EAR DISEASE.

DONOVAN gives the following advice in the *Medical News* of September 17, 1904:

1. In all diseases affecting the nasopharynx, always use reasonable precautions to avoid tubal infections.
2. Adenoid tissue, in any amount, and tonsils producing any pathological symptoms, should always be removed.
3. With the first symptoms of earache, use heat and dehydrating remedies; this not producing beneficial results in a few hours, treat surgically.
4. When possible, with a catheter use mild continuous stream of hot air early, and repeat in eight or ten hours.
5. If the symptoms are not relieved by these methods within ten to twenty-four hours, make free incision through the entire drum, or extend into upper canal wall if necessary. Use aseptic gauze drainage and outside pad for absorption.
6. Never under any conditions allow the patient to suffer tortures for more than forty-eight hours and remain exposed to the risks of complications.

Considerable experience with the catheter treatment, since writing the above, fully confirms the original hopeful anticipations, and has very much lessened the number of cases requiring opening of the drum.

THE TREATMENT OF CONSTIPATION BY THE INJECTION OF OLIVE OIL.

HERSCHELL in the *Lancet* of October 1, 1904, writes upon this subject. He says that although introduced into practice a considerable time ago by Kussmaul and Fleiner, the treatment of constipation by the injection of olive oil appears to have been much neglected in this country. Whilst without question most valuable in obstinate cases of constipation, especially when due to spasmodic contraction of the bowels, we find in the methodical use of

oil injections one of the most useful procedures which we have at our command for the treatment of mucomembranous colitis. For not only does it to a great extent relieve the constipation which is so often present, but it appears to reduce the amount of mucus in a remarkable manner. In fact, in many cases the amelioration amounts practically to a cure.

There are two points to be observed if we wish to be successful with this method: first, that we select cases which are suitable; and secondly, that the injections are given in a proper manner. If we prescribe the injection of olive oil as a matter of routine in all the cases of constipation which come to us for treatment we shall certainly be disappointed and discredit a very valuable method. For instance, we can hardly expect to do any permanent good to cases which depend upon improper food, or hard drinking-water, or are the result of pyloric stenosis or gastric myasthenia. In like manner we cannot restore defective sensibility to the interior of the rectum by injections of any kind. But, *per contra*, we shall invariably obtain results of a very gratifying nature in (1) cases depending upon chronic colitis; (2) constipation associated with spasm of the bowel such as we so frequently find in neurasthenia; and (3) we may use this method with advantage to secure a daily action of the bowels in atony of the intestines whilst the affection is being treated by electrical methods. In these last cases the first week or two is most trying to both physician and patient, as all purgatives have been abandoned and the treatment has not yet had time to restore sufficient tone to secure a daily relief. In these circumstances oil injections render us invaluable aid, and if properly given are usually sufficient to keep the patient comfortable.

The method consists in the injection of from three to ten ounces of warm olive oil into the rectum at bedtime. This is retained during the night, and usually results in an evacuation after breakfast on the following day. If the oil is introduced slowly at a low pressure by the force of gravity it should not produce an immediate call to stool, and the patient should have no difficulty in retaining it for some hours. The Higginson syringe is the worst possible apparatus for inject-

ing the oil, as the average patient cannot manipulate it in such a manner as to produce a gentle and equable flow, the pressure under which the oil enters the body is far too high, and it cannot be easily used single-handed whilst the patient is in the recumbent position. From this it follows that as it is usually impossible for the physician or a trained nurse to give the daily injection we must provide the patient with an apparatus which can be easily used unaided, and which from its construction compels a proper technique.

The apparatus which the writer has devised to meet these indications is very simple, consisting of a glass funnel of a large relative capacity to its height, provided with a metal loop by which it can be suspended at a convenient height above the bed upon which the patient lies. It is fitted with about 27 inches of rubber tube of large caliber, and terminates in a nozzle of special construction. This latter has a large bore to allow the ready passage of the oil, which invariably clogs the nozzles supplied with ordinary enema apparatus, and has the end of the bore well rounded so that even when roughly and unskilfully used it is impossible to damage the mucous membrane of the rectum, and from its shape is self-retaining. For durability and cleanliness it has been constructed of aluminum. The outflow of oil is controlled by a spring clip, which is so contrived that when opened it will remain so until a catch has been released.

The injection of the oil can be readily performed by the patient without assistance. The measured quantity of oil is heated by standing the beaker containing it in a basin of hot water; it is emptied into the funnel, taking care that the clip is closed; the funnel is hung on a nail driven into the wall above the bed, the patient lies on his back directly under it, places a pillow under his hips, introduces the nozzle, presses the clip, and waits until the funnel is empty. For the first few times it may be as well to apply a pad of wool to the perineum to absorb any oil which may not be retained; afterward this precaution will be superfluous. It is best to commence with five or six ounces and to reduce the dose daily until the smallest amount which will produce an action of the bowels is found. If five ounces is not sufficient it may be raised to

ten, but beyond this it is not advisable to go, and in cases where this is insufficient the oil may for a few days be supplemented with a small water injection before breakfast. In any case, after a few days it will probably be found that a few ounces of oil alone at bedtime will produce a daily evacuation. When this stage has been arrived at this dose can be given nightly for two or three weeks. The effect may then be tried of using the oil on alternate nights. It will probably be found that the bowels will be opened on the days following the intermission, and as the case progresses the action of the oil will extend over a longer and longer time until it will be found that each injection will be followed by several daily stools. When this period arrives the injection should be ordered to be taken only on the evening of a day upon which an action has not taken place.

CHLORETONE IN THE VOMITING OF PREGNANCY.

Bowcock reports his results with this plan of treatment in *Medicine* for October, 1904. He reminds us chloretone (C_4H_7OCl) is a derivative of chloroform and acetone. It is a white, crystalline, volatile compound, having a camphoraceous odor and taste. Warm water dissolves it to the extent of about one per cent; on cooling a portion of the chloretone crystallizes out, leaving about .8 of one per cent in solution. It is soluble in oils, glycerin, etc., and very soluble in alcohol, ether, benzine, acetic acid, chloroform, acetone, etc. Chloretone is a permanent chemical compound, unaffected by heat or light. Even under the action of the gastric and intestinal secretions the molecular constitution is not destroyed.

It is claimed that the vomiting of pregnancy is due to increased irritability of the gastric sensory nerves with coincident overstimulation of the nerve filaments in the gastric center. If this is true then chloretone meets the conditions admirably, since the main action of chloretone is confined to the central nervous system, it being essentially the same as that of the other anesthetics and hypnotics of the fatty acid series, differing from most of the members of this group in not depressing the circulatory system.

Internally administered it passes unchanged into the circulation; but that "it is decomposed within the body appears from the fact that, volatile as it is, we do not find it in the expired air, nor has it been positively recognized in the urine." If the "burning down" of the chloretone takes place in the central nervous system, as believed by Wilcox, the methyl radicle (CH_3) and the chlorine (Cl) liberated have a chance to act directly on the nerve filaments and protoplasmic processes, inducing sleep. The action is the same as that of fatigue. Neither the heart nor the respiratory centers are depressed. The hypnotic effect passes off gradually, and no "habit" is formed.

Chloretone is more nearly than any other known compound an ideal hypnotic, and it is more or less efficient in other capacities—notably as a sedative to the excited "vomiting center" and neighboring regions concerned in originating asthmatic or epileptic impulses, and as a local anesthetic in the stomach. Its action is not wholly central; it acts upon the brain unquestionably, but it has a local effect also, as the writer's experience demonstrates.

RESULTS OF SERUM TREATMENT IN ACUTE AND CHRONIC ARTICULAR RHEUMATISM.

As a result of further clinical experience MUNZER, of Halle (*Münchener medicinische Wochenschrift*, Aug. 16, 1904), concludes that the streptococcus serum treatment of articular rheumatism is superior to methods heretofore employed in that it influences the general course of acute cases more favorably, offers a better chance for the cure of endocarditis, and guards against relapses. It also gives good results in subacute and chronic cases. Of forty-seven cases, forty-three were completely cured, and one much improved. Of the three remaining patients one suffered slight lameness of the knee, one developed chronic nephritis, and the other atrophy of the deltoid muscle. Even more favorable results were obtained in cases of chronic rheumatism following the acute disease, eight out of eleven patients being permanently cured, and the other three being much benefited. The results obtained in primary chronic rheumatism were not so

encouraging, although five out of eleven patients were practically cured; two were so much relieved that they were enabled to resume their work; and four were improved slightly. Thirteen out of twenty-three individuals who developed endocarditis during their illness were found upon later examination to be free from cardiac defect. As the serum produces acute exacerbations in chronic inflammatory processes it is contraindicated in chronic endocarditis associated with stenosis of the cardiac orifices. It is also contraindicated in pericarditis and pleurisy for the reason that it may increase the inflammation present in these diseases. As their complications abate its cautious administration may be begun.

In acute articular rheumatism the usual dose is 5 cubic centimeters a day until symptoms are controlled. In chronic cases the same quantity is given at intervals of two or three days until 30 cubic centimeters have been given, when treatment is discontinued for one or more weeks, and then begun again and continued in the same manner as before. •

THE ACTIVE PRINCIPLES OF FILIX MAS.

JAQUET, of Basle (*Therapeutische Monatshefte*, August, 1904), states that Kraft has isolated seven principles from filix mas, the most active of which is filmaron, a light yellow, amorphous powder, easily soluble in acetone, chloroform, and ether, slightly soluble in alcohol, and insoluble in water. In alkalies it is also soluble, and is easily decomposed by alkaline solutions. It is acid in reaction and melts at about 60° C. Although the most easily decomposed member of the filix group, it remains stable when kept dry, Jaquet having found a two-year-old preparation physiologically active. In frogs filmaron produces convulsions, motor and sensory paralysis, and death. In rabbits it produces motor weakness, and in some instances paralysis. Dyspnea and diarrhea not infrequently supervene, and death may occur without premonitory symptoms. Section shows inflammation of the gastric and intestinal mucosa with punctate hemorrhages into the submucosa, swelling of Peyer's patches, congestion of the liver and kidneys, and occasionally

slight edema of the lungs. Out of thirty-eight cases infected with *tænia saginata* in which filmaron was used the worm was expelled in its entirety in twenty-eight, and in six cases it was expelled minus the head. In the four remaining cases positive results were not obtained, although in three of them, the patients being children, failure was thought to depend upon the minuteness of the doses employed.

The average dose of filmaron is 0.7 gramme (10 grains) administered in chloroform and castor oil, and followed in from one to three hours by a full dose of castor oil. In conclusion Jaquet states that he considers filmaron the most valuable anthelmintic principle contained in filix mas.

[Felix mas by itself should not be used with castor oil lest it cause poisoning.—Ed.]

TREATMENT OF ACUTE ARTICULAR RHEUMATISM.

In the *St. Paul Medical Journal* for October, 1904, HENSEL gives the following advice:

The sick-room should be kept at 65° to 70° F. Draughts should be avoided. The patients should be lightly dressed in flannels and covered with a sheet of the same material.

The diet should consist of milk, butter-milk, farinaceous matter, eggwhite, and good fruit. After defervescence ordinary diet should be gradually resumed.

Stimulants may be employed if needed.

Internal therapeutics: Salicylic acid and its derivatives. These are the best drugs we possess for this disease. There is some difference of opinion as to which preparation should be used. It seems that sodium salicylate is used more than the ammonium salt, salicylic acid, salicin, salophen, or methyl salicylate. It should be given in ten-grain doses every two hours until the pain and other local features have largely disappeared. Then it should be given at longer intervals. If exacerbations occur large doses should be resumed. It is claimed that this drug has no curative effect on heart complications after they are once established. It should not be given in cases of weak heart without appropriate heart stimulants being given in conjunction. Strümpell gives one to

one and a half drachms of sodium salicylate at one dose at beginning of disease.

Antipyrin is usually considered unsafe, although quite effectual. At von Leyden's clinic this drug is given in daily doses, 60 to 90 grains for three or four days, or until painful symptoms subside. No bad results have followed.

The alkaline treatment is only mentioned because it has so long been used. It is now occasionally used when the salicylates cannot be borne. Anders gives it in conjunction with the salicylates as a routine treatment.

Potassium iodide: Good after acute stage subsides and disease lingers.

Colchicum: Good when potassium iodide is indicated.

Lactophenin: Roth uses it, but it is not as good as the salicylates.

Aspirin or acetyl salicylic acid: Friedeberg recommends it because of its pleasant taste and because it has no untoward effects.

Antistreptococcic serum: Stengel has used it with marked improvement in three cases of protracted recurring rheumatism.

Syrup of iodide of iron: Used with success in a limited number of cases.

For hyperpyrexia use cold baths.

Cardiac complications should be treated symptomatically. Endocarditis, pericarditis, and endopericarditis rarely require special remedies. A copious pericardial effusion calls for paracentesis.

Local measures: In mild cases wrap joints in cotton batting or flannel. For severe pain fomentations as hot as can be borne or hot cloths lightly wrung out of Fuller's lotion of sodium carbonate, laudanum, glycerin, and water.

The following ointment is of service:

℞ Acid salicyl.,
Lanolin,
Ol. terebinthinæ,
Adipis, aa ʒiij.

M.

Rub freely over affected joints and follow by wrapping in cotton. The author substitutes for the turpentine, menthol a drachm to the ounce, and for the lanolin, unguentum hydrargyri ammoniati. This combination seems to work better than the other.

Methyl salicylate applied drop by drop on skin, and joint then wrapped in gutta-percha tissue and a flannel bandage ap-

plied, is very effectual. A cold compress or ice-bag is used by the Germans especially.

Keep joints at rest by a padded splint or plaster-of-Paris cast. Blisters applied near the joints or the thermocautery or heated glass rods lightly applied are useful.

Convalescence.—Patient should stay in bed a week after the temperature is gone and pain has disappeared. After he goes into the open air he should avoid cold and wet.

Iron should be given until the blood is normal.

For the stiffness and swelling massage and applications of hot water or warm baths should be employed.

It has been the experience of the author that the less a rheumatic patient is bathed the sooner he will recover.

AMEBIC DYSENTERY.

The treatment of amebic dysentery, according to TUTTLE, who writes in the *Journal of the American Medical Association* of October 8, 1904, is based on two facts, viz.: The disease is due to an infection of the colon by *Amœba dysenteriae*, and the seat of the infection is in the crypts of the mucous membrane or in the submucosa. Whether the original infection is due to the burying of the amebæ themselves in these tissues or to the deposit of the spores it is impossible to state. From recent observations the writer is of the opinion that the latter is more probable, but this is not important from a practical point of view. Our efforts should be directed toward getting rid of them and preventing their reproduction. In the beginning we may observe that there are usually no serious constitutional manifestations in this disease except when these are due to complications such as have been mentioned.

There is, therefore, no indication for serum therapy, as the disease is not in the blood and cannot be reached through that channel. The whole treatment should be directed toward the local lesions, the destruction of the amebæ and the prevention of their development from the spores, and as these are buried in the tissues it is evident that it will be impossible to destroy them by superficial washing or flush-

ing of the intestinal canal, although this treatment is important and should be made use of to get rid of all the germs floating about in the colon. It is clear, however, that something should be employed by which the tissues may be penetrated and the germs or spores destroyed in order to completely eradicate the disease. While the remedies mentioned, bichloride of mercury, nitrate of silver, saline solution, solutions of quinine, peroxide of hydrogen, etc., may be germicidal to the ameba when brought in direct contact with it, it is perfectly clear that none of these remedies will penetrate the submucosa.

This fact explains why so many cases treated by these remedies recur. The ideal treatment must, therefore, consist of some method by which these buried organisms can be reached and destroyed *in situ*. Early in his studies of *Amœba dysenteria* it was discovered that when the specimen stools on the slides on which they were being examined cooled off below a temperature of about 70° F. the motility of the amebæ was lost and could not be restored; this fact suggested that if the temperature of the parts containing these organisms could be reduced considerably below this degree the amebæ could be destroyed and their infecting and reproductive powers would be eliminated. The application of cold to the intestinal mucous membrane through prolonged douches seemed to offer a solution of the question. At first such remedies as krameria, ichthyol, bichloride of mercury, and nitrate of silver were introduced into the cold douches, but one after another was discarded, as it was found that simple cold water served every purpose in destroying the amebæ.

When the bowel is tolerant of hydrogen peroxide, 5 to 10 per cent of this remedy is introduced into the water on account of its beneficial effect to the ulcers and to combat any mixed infections that may happen to be present.

In some patients it is necessary to use a long rectal tube in order to get the fluid high up in the colon, but in the majority of cases the simple rectal tip of a fountain syringe is sufficient. The patient is placed in the knee-chest posture, the bag or fountain being elevated not more than three feet above the level of the hips, and the

fluid is allowed to run in slowly. The amount of water used is limited only by the tolerance of the patient. Some take only a small quantity at first, but they soon learn to take even two or three quarts. Some can retain the water for only a few minutes, while others retain it for three-quarters of an hour. In the former class it is necessary to repeat the injections two or three times at each sitting in order to obtain the desired effect. The treatment is always begun by the administration of a large dose of sulphate of magnesium, and this is repeated once or twice every week, according to the necessity of the case. The time consumed in ridding the bowel of the amebæ depends entirely on the tolerance of the intestine to cold water. In those cases in which large amounts of very cold water can be retained the organisms disappear in a very short time, while in those who can only retain small quantities for short periods several weeks are required.

In the chronic cases, where there is a tenderness over the cæcum and hepatic flexures, an ice-bag is applied over this region for two hours twice a day.

A metal or glass reservoir is better than a fountain syringe for the injections because these vessels can be filled with cracked ice and the water kept very cold. The best results have been obtained in those cases in which the temperature of the water used was below 45° F.

Local ulcers of the rectum and sigmoid are treated by applications of antinosin, argyrol, and other astringent and antiseptic substances. This local treatment is of the utmost importance and should never be neglected, as many of these ulcers are complicated by a mixed infection.

Internal medication is indicated where the digestion is impaired or where the patient needs stimulation on account of exhaustion. In three instances the disease has been seated so high up in the colon and the patients have been so intolerant of cold water that it was impossible to reach the infected region in this manner, and it became necessary to resort to surgical means in order to eradicate the amebæ. In one instance the Gibson method of valvular colostomy was employed; in the other two the appendix was drawn up into the abdominal opening and sutured to the skin, after the method of

Weir, until the peritoneal cavity had closed off; it was then amputated close to its base, and there was thus left an opening through which a catheter could be introduced for irrigating the colon. In the third case the patient developed miliary tuberculosis and died at the end of three weeks, the regular treatment having never been instituted. This case showed typical amebic ulcers above the ileocaecal valve, thus indicating the possible advisability of making the opening in the ileum instead of the colon in such cases. At the same time recognizing the fact that the appendix may be the seat of amebic infection, it would be wise to remove this origin in all operative cases. In seventy-three cases treated by these methods the results have been seventy cures, one death, one abscess of the liver, which eventually recovered, and one case improved but not cured, the patient being necessarily called to Europe after two weeks' treatment. In five cases there were at times marked tenderness over the hepatic region, and considerable rise in temperature, but these symptoms rapidly subsided with more frequent douching and the application of ice-bags over the caput coli and the hepatic region.

ATHEROMA OF THE AORTA IN RABBITS AFTER INTRAVENOUS INJECTION OF ADRENALIN.

RZENTKOWSKI, of Warsaw (*Berliner klinische Wochenschrift*, Aug. 1, 1904), confirms Josue's observations on the effect of intravenous adrenalin injections in rabbits. He summarizes the morbid changes induced as follows: (1) Hypertrophy of the heart; (2) numerous localized patches of calcification in the wall of the aorta, which by lessening resistance to arterial pressure tend to the production of aneurism; (3) cirrhosis of the liver and hyperemia of the kidneys. Some rabbits are so susceptible to adrenalin that they die of acute dilatation of the heart and edema of the lungs a few days after the injections are begun, and in these beginning calcific deposits on the wall of the aorta are observed. Rzentkowski is not positive that the pathological process in the aorta is a true atheroma, for the lesions consist merely of localized areas of calcification without concomitant small cell infiltration. He advances no hypothesis to explain why the process is local instead of diffuse.

OSMIC ACID INJECTIONS FOR RELIEF OF TRIFACIAL NEURALGIA.

MURPHY states his views as to this method of treating this condition in the *Journal of the American Medical Association* of October 8, 1904, as follows:

1. That trifacial neuralgia, tic-douloureux, is not the result of a pathological entity which has so far been definitely determined.

2. The tendency after all types of operation, with the possible exception of removal of the sensory root behind the ganglion, is to recurrence of the disease.

3. This is probably due to the regeneration of certain nerve elements following the deep operation and anastomosis and retention following the superficial.

4. Sudden shocks and irritation to the terminal filaments of the trifacial not infrequently cause an immediate and occasionally a permanent cessation of the neuralgic pain.

5. The mortality from the superficial exsection is practically *nil*; the mortality from the intracranial operations is great. The hazard is greater than should be taken in a disease which does not in itself jeopardize life.

6. Injections of osmic acid in one- to two-per-cent solution into the nerve trunks relieve the pain immediately, and in a large percentage of cases for a long period of time.

7. The injections into the superficial tissue for peripheral neuralgia should be abandoned, as the nerve trunks are easily located, and there is no danger of superficial necrosis following such operation.

8. It should never be injected into a motor nerve or a motor nerve area, and, therefore, never into the spinal nerves except in amputation stumps.

9. It produces a local necrosis of the tissue into which it is injected, and even of the wall of the foramen. This necrosis does not suppurate unless the area is exposed to mouth infection. In that case the suppuration often continues for weeks, draining into the mouth, giving no special inconvenience, and in no way interfering with the final result.

10. The best results are obtained with a 1½- to 2-per-cent solution. This should be injected in many places into the nerve trunk and also into the foramen.

11. All of the nerve branches should

be injected—the palatine, lingual, mandibular, superior maxillary (infraorbital), and supraorbital. They can all be exposed through mouth incisions, except the supraorbital. Many times there are three or four divisions of the supraorbital, and they should be searched for carefully and each injected. Occasionally it is necessary to inject the auricular branch. The posterior palatine is not so difficult to inject as one would at first imagine.

12. The foramina can and may be injected without anesthesia or incision. The procedure is quite painful, however, and is not certain in its results.

13. The injection can be made with local or general anesthesia. The author prefers the general.

14. The injection is free from danger.

15. Judging theoretically from the experience with incisions, resections, and ganglion operations, the relief should not be permanent after the injection of the osmic acid. From clinical experience up to date, however, and particularly from Mr. Bennett's showing, the fact is that many cases are permanently cured. Time alone must determine the final result of this treatment. Its ease of application, its *nil* mortality, and its immediate results forcibly commend its use.

SIMPLE SYCOSIS AND ITS TREATMENT.

ARTHUR HALL states in the *Clinical Journal* of October 5, 1904, that all are agreed that simple sycosis is not an easy complaint to get rid of, and that it takes a long time to disappear entirely. But this is about the only point upon which authorities are agreed. Most writers speak in favor of close shaving, but appear to do so with some hesitation; others favor removing infected hairs by epilation, and keeping the beard cropped with scissors. It is the author's belief, however, that the proper treatment consists primarily in constant close shaving. Upon the regularity with which this is done each day will largely depend the success of the treatment. On this point he has no hesitation in speaking strongly, and since adopting this method of treatment some years ago he has not seen a single case in which improvement has not quickly taken place. When a patient presents himself with sycosis, it certainly seems a

ridiculous thing to tell him to "shave close." It is the last thing in the world he would expect to be told, and unless you are yourself convinced of the necessity of his doing so, it is difficult to persuade the patient. But it is surprising to find how readily he accommodates himself to it, especially when he begins to find out its benefit. This close shaving will have to be kept up regularly for many months, and, moreover, it is difficult to get a barber to do it; for, apart from the barber objecting to a person with sycosis being seen in his shop, he himself is afraid of shaving over a sore patch. Hall always advises the patient, therefore, to shave himself. If he is accustomed to doing so, all the better; if not, the sooner he learns the sooner he will do it successfully. Sharp razors are essential, so that two at least must be kept, and one always kept sharp. Very hot water, prolonged lathering, and previous oiling of the face helps to soften the beard and provides a kind of superfatted soap. It is surprising how soon after the first shave or two the process causes little or no trouble.

The rest of the treatment which the author adopts is as follows:

A boracic lint fomentation is applied over the whole chin and cheek, covered with gutta-percha tissue, and kept on by means of a handkerchief carried round and tied at the top of the head. This is worn every night for many weeks. In the daytime the ordinary compound calamine lotion,

Calamine,
Zinc oxide, aa 1 ounce,
Glycerin, 2 drachms.
Lead lotion, ½ ounce,
Rose water, to 4 fluidounces,

is applied after shaving. The general line of treatment then becomes:

1. Boracic fomentation every night.
2. Close shave with sharp razor every morning.
3. Calamine paste after shaving.

After a while, when the greater part of the inflammation has subsided, it will be found that pustules keep arising here and there, and the author usually advises the patient, in the morning, before shaving, to pull out the hair with a pair of fine tweezers, and to apply a little white precipitate ointment or biniodide of mercury in spirit on a pointed match-stick into the follicle. In this way it is usually easy to

keep the pustules in check. Some patients may find the calamine paste too drying for the skin, in which case some simple ointment may be applied after shaving, such as the unguentum glycerini plumbi subacetatis or a dusting powder of zinc oxide and starch, preceded by an ordinary bay rum spirit lotion. The points, however, which are most important are the close shaving and the boracic fomentations.

It may be necessary in particular cases to modify the above methods in various ways according to individual requirements, but certainly in the author's experience during the last few years he has found it to exceed any other method in comfort to the patient and speedy improvement. Within a comparatively short time, in the average case, the face becomes sightly, and if only the patient will persevere in regular close shaving every day, the disease does not get any real hold again. If, however, the patient becomes lazy and allows the hair to grow for two or three days, it will tend to recur for many months after it is apparently cured.

THE IODINE TREATMENT OF SUPPURATION.

PUGH writes in *American Medicine* of October 15, 1904, and details his experience with it.

In the service of a large institution many cases of infected wounds are seen, and many are remarkably resistant to treatment. In these cases the author applies the iodine direct to the wound in the form of the tincture, applied by means of a small swab, made by twisting a piece of cotton around a toothpick. The power which this substance has of cleansing a wound filled up with pus, the short time and the small amount required, is surprising. In considering the class of cases which have come under his care, he discusses them as follows:

1. *Scalp Wounds*.—When these cases are first seen they are usually found to be very dirty, and in many of them little hope is entertained for union by first intent. In many of these cases physicians are in the habit of packing the wound with gauze and allowing it to granulate, or else placing a few sutures and inserting a wick drain. This seems to be a not altogether desirable method, as recovery is not very rapid and a scar is bound to result, which,

if revealed to the gaze of every one, is uncomfortable to the patient. The author's method of treating this class of patients is as follows: The wound is first cleansed by means of a normal saline solution, and then thoroughly dried; it is then swabbed with pure iodine and the entire wound closed. In the vast majority of cases Pugh has succeeded in obtaining union by first intent.

2. *Ulcers of the Leg*.—At least 100 patients have been treated by the iodine method, the ulcers varying in size from that of a dime to those which occupied the entire circumference of the leg. Many were exceedingly foul, being at times filled with pus and vermin, and in all cases one application was, as a rule, sufficient to rid the area of pus. Not only does it act as a germicide, but as a deodorant as well; it stimulates the formation of granulation to a considerable extent, and combined with rest in bed, many large ulcers have been actually healed by this method.

3. *Inguinal Adenitis*.—Many patients with extensive suppuration were treated as follows: The area was opened up thoroughly, swabbed clean by means of dry sponges, and then the iodine applied carefully to every part of the wound. Where suppuration was not too extensive, closure of the wound with hope of union by first intention was tried, with success in many cases, and many required but one application. The iodine seems to have the same effect upon the Ducray bacillus as upon the ordinary pyogenes. Patients with inguinal adenitis, as a rule, do not care to stay in the hospital, but wish to get up and around, and in these cases it is indeed worthy of a trial. It is exceedingly gratifying to find a patient returning in a few days with a dressing that is dry or almost so, instead of the very foul cases we so frequently see in dispensary practice; the patient at the same time feeling much more comfortable.

4. *Vaginitis*.—Upon vaginal discharges, particularly those produced by the gonococcus of Neisser, iodine exerts a most favorable influence. The discharge in many cases ceases after a few swabbings of the cervix. It is particularly of value in the so-called subacute stages.

Iodine has also been applied to the uterine mucosa in the early stages of puerperal sepsis, with excellent results.

In the treatment of surgical tuberculo-

sis, iodine is one of the very few remedies of value. The author has seen excellent results follow its use upon old tuberculous sinuses, following tuberculous glands of the neck. In tuberculous joint affections it does great good, but in tuberculous osteitis its use is not followed by such good results, except in that it moderates the discharge associated with this condition. Upon venereal sores, as chancres and chancroids, it is useful—particularly does it check the serpiginous sores; also its use may be recommended for pus in the perineum following urinary extravasation.

To summarize, he strongly advises its trial in all cases of suppuration.

MANAGEMENT OF PREGNANCY COMPLICATED BY HEART DISEASE.

In the *British Medical Journal* of October 8, 1904, MACKENZIE mentions one or two points in the management of cardiac affections during pregnancy. His remarks refer especially to mitral valve lesions. During the later months of pregnancy, perhaps particularly in cases of mitral stenosis, he is convinced of the advisability of using small doses of mercury—either in the form of calomel or blue pill—about twice a week, or oftener if there is much venous congestion and dropsy. No vegetable aperient can at all compare with this remedy. It is a common practice with some to prescribe digitalis with a view to assist the heart in its work and restore compensation. When pregnancy is advanced, the author hesitates to use any drug which tends to increase the resistance in the peripheral arteries, and if digitalis is given, it should only be used in small doses and in combination with nitrites. When the heart is seriously embarrassed, and compensation is obviously failing, the author thinks treatment by vasodilator remedies is more rational. During the past year he attended two multiparæ with mitral disease who developed such urgent cardiac symptoms in the last month of pregnancy that the advisability of inducing premature labor seemed to be clearly indicated. Marked hydramnios was also present in one of these cases, and in the other there was an enormous amount of general dropsy. In both the urine was scanty and

highly albuminous. There was great dyspnea and precordial distress at times.

These patients were kept in bed, and were treated with blue pill and fairly large doses of thyroid extract (15 to 30 grains daily) as a good vasodilator. Under this treatment the symptoms were sufficiently controlled to enable one to wait for the spontaneous onset of labor. The thyroid, besides fully dilating the peripheral arterioles, thus relieving the engorgement of the heart, caused very great diuresis. It produced no alarming symptoms of any kind, and the pulse improved under its use. Both mothers recovered very well, the symptoms disappearing rapidly after delivery.

There is only one point the author refers to regarding the obstetrical treatment of these cases, and that is connected with the third stage of labor. The great danger at this time is that death may occur suddenly from overdilatation of the right side of the heart. Therefore it is most important to do nothing, for some time at least, to check the free hemorrhage which almost always takes place in these cases. The author believes that a sufficient quantity of blood to relieve the overfilled venous circulation will generally be lost if the practitioner can banish from his mind the idea of a serious postpartum hemorrhage, and wait for the flow to cease spontaneously. If in spite of pretty free bleeding alarming cardiac symptoms appear, the use of amyl nitrite, as recommended by Fraser Wright, should certainly be tried, and venesection may be required to be performed in addition.

POISONING BY WOOD ALCOHOL.

From a very exhaustive study of this subject contributed to the *Journal of the American Medical Association* of October 8, 15, and 22, 1904, BULLER and WOOD reach the following conclusions:

1. Methyl or wood alcohol, in any of its forms, as well as all methylated preparations made from it, are dangerous poisons, menacing both life and eyesight.
2. It is best known to us in its deodorized form as Columbian spirits, purified wood alcohol, cologne spirits, colonial spirits, standard wood spirits, union spirits, eagle spirits, green wood spirits, and a variety of other names.

3. It is used as an adulterant of, and substitute for, grain alcohol in cheap whiskey and other alcoholic beverages, not to mention Jamaica ginger, lemon extract, and many other essences and flavoring fluids.

4. Methyl alcohol is largely used in the preparation of many proprietary and patent medicines, witch-hazel, domestic liniments, as well as bay rum, Cologne water, Florida water, and other perfumes.

5. To this date at least 153 cases of blindness and 122 deaths have resulted from this poison; in all, 275 instances of lost life and eyesight. This total would probably be raised to 400 if a more thorough search were made.

6. The injury to the ocular apparatus consists chiefly of a destructive inflammation of the optic nerve fibers or retinal elements (or both), followed by their atrophy.

7. The symptoms of poisoning are gastrointestinal disturbances, more or less severe, accompanied by abdominal pain, general weakness, nausea, vomiting, vertigo, headache, dilated pupils, and blindness. If recovery does not occur, there is marked depression of the heart's action, sighing respiration, cold sweats, delirium, unconsciousness, coma, and death.

8. The blindness is bilateral, and may set in a few hours after the imbibition of the poison, or it may be delayed for several days. It is generally complete, with a subsequent improvement, and finally, a relapse into permanent blindness.

9. The visual fields are contracted and exhibit absolute central scotomata. The ophthalmoscope reveals at first a congested nerve-head, followed by grayish or white atrophy and contracted vessels.

10. The diagnosis can hardly be mistaken. Methyl alcohol poisoning presents a picture unlike that of any other intoxication. Acute abdominal distress, followed by blindness, should always awake a suspicion of methyl poisoning.

11. The prevention of poisoning by this insidious drug can only be brought about by prohibiting the sale of "deodorized" wood alcohol in all its forms. The number of deaths may meantime be limited by putting all methylated preparations on the list of poisons and prosecuting all persons adulterating foods and drinks with it. Labeling it with the notice, "This fluid, taken internally, is likely to produce

blindness," will certainly have a deterrent effect.

12. Methyl alcohol intoxication is an example of idiosyncrasy. As in the case of several other poisons, some persons are largely immune so far as permanent damage to the organism is concerned. If ten persons drink, say, four ounces of Columbian spirits within three hours, all will have marked abdominal distress and four will die, two of them becoming blind before death. Six will eventually recover, of whom two will be permanently blind. With still larger doses the proportion of death and blindness will be greater.

13. Poisoning by inhalation of the fumes of methyl alcohol generally occurs when the exhalations are mixed with air, as in varnishing the interior of beer vats, small rooms, etc. It is also highly probable that in susceptible subjects repeated or even single methylated "alcohol rubs" may produce poisonous symptoms, through absorption of the spirit by the skin.

14. Chronic (or partial) poisoning from methyl alcohol (in the shape of "nips" of methylated Jamaica ginger, bay rum, punch made with Columbian spirits, etc.) is the most insidious and probably not an uncommon form of intoxication. Its symptoms are not so pronounced or so easy of recognition as in the acute form, but the eyes, digestive apparatus, and nervous system undoubtedly suffer.

15. The use of ethyl or grain alcohol in the arts, as in the manufacture of varnishes, as a burning fluid, for "stiffening hats," lacquering brass, etc., is without danger to life or eyesight. By adding to it a small percentage of naphthalin, for example, the fluid would be undrinkable. A combination of ethylic alcohol with 10 per cent of wood spirit would answer the same purpose. Such a mixture is the "methylated spirit" of Great Britain, where not a single case of acute poisoning or amaurosis from methyl alcohol is recorded, in spite of the extensive commercial use of methylated preparations in the British Isles.

16. The treatment of methyl alcohol intoxication consists chiefly in getting rid of the poison from the stomach and intestines by means of the stomach-pump and rectal injections; stimulants, especially ethyl alcohol, strychnine, and coffee; heat to the body and extremities.

17. The treatment of the amaurosis is unsatisfactory. In the early stages pilocarpine and potassium iodide are useful; later, strychnine hypodermically and by the mouth is advisable.

SOME OBSERVATIONS ON THE NURSING OF TYPHOID FEVER.

Miss GORDON, a trained nurse, writes on this subject in the *Canadian Practitioner* for September, 1904. She says that whatever means are employed for bringing down a temperature, let the patient regard the process with pleasure, and not with dread, and she urges the nurses to the exercise of care.

In private practice sponging and the pack are chiefly relied upon. Endeavor to be an artist in sponging. Know why you sponge. Remember that the primary object is not the sudden reduction of temperature, but the indirect control of it by the soothing of the nerve centers. However limited the time for giving a sponge, never appear to be in a hurry. Have everything in readiness before removing the night-dress. Make long, firm, straight, downward strokes, paying particular attention to the large blood-vessels and to the spine. If you have half an hour to spend on the sponge, put twenty minutes of the time on the inner sides of the limbs and down the back. Let your touch be gentle, firm, and soothing. Never allow your patient to shrink from the sponge. With the average man, and especially woman, there is an intense dislike to the shock of cold water. But if you wish to give a cold sponge and he shrinks at the first touch, take two basins, one tepid and the other cold; take the first stroke of tepid; that will prepare him for the second stroke of cold. The same principle applies to the wet pack. Apply the sheet wrung out of warm water and gradually reduce its temperature by sprinkling with cold water. Avoid all resistance. Do not allow your patient to use his strength when you can save it. Let the sponge or pack be a rest, not an exertion. If the delirium is violent and the nervous symptoms very marked, the hot sponge is at times more beneficial than the tepid or cold. Go over the whole body, keeping up the temperature of the water from a supply pitcher. Give the back the last attention, and be-

fore sponging it put on a slip night-dress opening down the back. Then take the long strokes down the spine as hot as the patient can bear, and in ten or fifteen minutes he may drop to sleep under your hands. Should you gain that object, gently arrange the night-dress and bed-clothing, and be careful not to disturb him. In general neuritis, which is not an uncommon complication, it may be necessary to suspend the sponging for a time, or the body may be gone over in pats rather than strokes, drying off in the same manner. When handling a limb in neuritis make pressure with the hand upward toward the trunk, as the downward traction stretches the inflamed nerve and causes more intense pain.

In delirium a feather pillow should not be used. If you cannot afford a water pillow, a three-quart rubber bottle filled one-third with tepid water and the air excluded makes a very good substitute. A hair pillow is cooler than one made of feathers.

Never scold a typhoid patient. Speak firmly but gently; agree and sympathize with illusions rather than argue. Notice carefully if the patient is worrying and find out the cause. He may dislike a water pillow; if so, do not use it. A picture, a wall-paper, or a curtain pattern may be bothering him and he cannot tell you, or it may be a colored screen, a colored pin-cushion, or a perforated cane chair that may be causing him annoyance; all bright colors and patterned things should be kept out of a typhoid's sight. You cannot nurse by rule in typhoid fever, as no two cases run exactly alike, and it develops more idiosyncrasies than any other disease.

When tympanites is present and applications are ordered, great care should be exercised in their use. All applications, hot or cold, should be made of a sufficient size to cover the crests of the ilium, as the bony prominences then help to bear the weight of the poultice, stupe, or ice-coil. In using an ice-coil place a piece of flannel between the coil and the skin, and keep the whole in place by a binder fastened down the center with a perforation on either side to allow the ends of the coil to pass through. The patient can then be turned from side to side, thus preventing hypostatic pneumonia, bed-sores, and

all other inconveniences and dangers of the one position, without displacing the coil. Let your poultice be hot, light, well-beaten, and spread not more than one-half inch in thickness. That may also be kept in place with a binder. In using turpentine on either stupe or poultice it is better to lightly vaselin the whole surface of the part before making the first application. The skin is then much more tolerant of heat and does not blister or redden quickly. An ice-coil is much better for cold application than an ice-bag on account of its light weight and the little difficulty of keeping an even temperature. If an ice-bag is used, suspend it from a cradle, and do not allow its full weight to rest on the abdomen in either tympanites or hemorrhage. To reduce tympanites an enema of soapy water one pint, glycerin four ounces, spirits of turpentine one drachm, given slowly and low down, produces increased peristaltic action and expulsion of feces and gas. Or the abdomen may be gently massaged twice a day, the course of the colon being followed from the right groin, with olive oil one ounce, spirits of turpentine one drachm. The enema must not be "sudsy," as too much soap causes irritation and tenesmus. Only add sufficient soap to make the water a milky color. If the distention is great, be careful to relieve the weight of the bed-clothes by a cradle. One can be readily made from a barrel-hoop cut in two and crossed.

THE NECESSITY OF EARLY AND VIGOROUS TREATMENT OF DIPHTHERIA.

MCMAHON in the *Canadian Practitioner* for September, 1904, tells us that for the past ten years he has treated all his cases of laryngeal diphtheria as follows:

1. Inject antitoxin, full doses.
2. Fume calomel under a tent (30 grains an hour) until stenosis is relieved.
3. Intubate early if symptoms demand it.

He has not a full record of his cases, but the results have been marvelously good. Every case he has seen and diagnosed early has recovered.

The early diagnosis from scarlet fever has in some instances been puzzling. The diseases often coexist in the same patient, and in some malignant cases of scarlet

fever there is a very imperfect development of the rash—indeed, the patient sometimes dies before the rash is due to appear. In three of the author's cases there was so much doubt that he injected antitoxin. In each case the rash came out on the second or third day, and diphtheria germs were found in cultures from the throat. Dr. Tweedie has reported a mixed infection in about sixteen per cent of the cases admitted to the Toronto Isolation Hospital.

The diagnosis from ordinary follicular tonsillitis is not always easy, nor is it indeed possible in some instances. In fact mild diphtheria quite frequently occurs with the semblance of ordinary follicular tonsillitis. It is the author's rule to have swabs examined from every case, and when in doubt to inject antitoxin. Whether the exudate is removable or not influences his diagnosis but little. It can sometimes be readily removed in diphtheria, whilst on the other hand it is quite adherent in many cases of pseudodiphtheria.

A syphilitic throat sometimes closely resembles diphtheria, but with care there is little probability of error.

The last source of uncertainty in diagnosis the author deals with is nasal diphtheria—especially the chronic form. An irritating discharge from the nose of a sick child should always excite suspicion and lead to careful inquiry even though no membrane be visible in the throat. Such a case was seen by the writer in a child less than a week old who had an offensive discharge from the nose, though nothing could be seen in the throat. How it contracted the disease was not known, but bacteriological examination showed the presence of the bacillus, and if additional proof were wanting, it was supplied by the fact that the mother of the child contracted a severe form of the disease from it.

The author was recently called at midnight to see a child that had been ill for three days, the parents supposing it had quinsy because it had an attack of that disease some little time before, and the symptoms were similar. He found the child desperately ill with nasopharyngeal diphtheria, but after an injection of 2000 units it made a prompt recovery. On looking for the source of contagion, he

found that a young man in the house—a salesman in one of our large department stores—had an offensive irritating discharge from the nose for about two months which resisted ordinary treatment. Bacteriological examination revealed the presence of diphtheria bacilli in the nasal secretion. In spite of vigorous treatment it was some six weeks before he was free from infection, although he felt well and ate his meals heartily throughout the whole three months.

One who recognizes the uncertainties and difficulties of diagnosis, and is prompt, bold, and fearless in his treatment, will have a very low death-rate indeed.

In the author's opinion antitoxin is an absolutely certain specific remedy when given in sufficiently large doses early in the disease.

The most fatal form—laryngeal diphtheria—causes death either from stenosis, bronchopneumonia, or sepsis, none of which will develop if a large dose of antitoxin is administered on the first day of the disease.

Children with enlarged tonsils and adenoids are in especial danger and require a specially large dose.

The same is true of cases of nasal involvement. Intubation as a rule is not done early enough.

THE TREATMENT OF HEART DISEASE.

HECHT, of Beuthen (*Therapeutische Monatshefte*, August, 1904), states that the unpleasant effects of digitalis upon the stomach can be overcome if the drug be combined with strychnine and quinine, and recommends for general use the following preparation:

℞ Fol. digitalis pulv.,
Quinine hydrochloridi, ää gr. xx;
Ext. nucis vomicæ, gr. v.

M. Ft. in pil. No. xxx.

One or two pills three times a day.

Under this treatment not only do symptoms of cardiac failure disappear, but a marked increase of appetite occurs. For this reason Hecht considers the combination an exceptionally advantageous one in those cases of cardiac disease in which nutrition is impaired and in which the first signs of failing compensation are beginning to manifest themselves. It is also

valuable in those cases in which digitalis alone disorders the stomach or fails to produce a therapeutic effect.

THE ANEMONES.

CHEVALIER (*Revue de Théraputique*, September, 1904) contributes an exhaustive article on these plants, including a botanical description of the different species, as well as an account of their physiological and therapeutic action.

The active principles of the anemones are not well known, though most investigators have found a volatile, irritant substance in the fresh plant, and a crystalline substance first isolated by Robert, of Rouen, and subsequently named anemonine by Heyer. Henriot, who has studied anemonine thoroughly, describes it as a white powder, crystallizing in fine needles, of neutral reaction, slightly soluble in water and ether, more soluble in alcohol, benzine, and chloroform. It is odorless, softens at 150° C., and melts at 156° C., giving off irritating vapors, which probably are due to an unsaturated aldehyde. It is readily decomposed by a variety of chemicals, but the products of decomposition are physiologically inert.

Experiments upon animals with the juice of the fresh plant show that the toxic effects are manifested by a period of excitement followed by dyspnea, motor and sensory paralysis, convulsions, and death. The carnivora are so susceptible to its action that vomiting occurs immediately after its ingestion, with the result that only slight symptoms of poisoning ensue. Intravenous injections, however, produce death within an hour and a half. Hypodermic injections cause intense pain and produce necrosis at the site of injection.

Anemonine is absorbed very slowly; it is only slightly toxic, and large doses must be employed to produce death within a few hours. It produces toxic symptoms similar to those of the fresh juice, only they are of slower evolution.

Ballon, who has investigated the therapeutics of anemonine and preparations of the anemones, states that they are valuable analgesics, acting especially on the sympathetic nerve. He considers them almost specific in oöphoritis, orchitis, dysmenorrhea—in fact, in all inflammations of the genital organs in both sexes.

They have also given good results in asthma, whooping-cough, and hay-fever. The dose of anemonine is from 0.05 to 0.20, either in pill or in alcoholic solution. Anemonine may be used externally as a counter-irritant. Applied to the skin in alcoholic solution of the strength 1 to 100 it produces vesication. It has also been used as a collyrium in the strength of 1 to 1000.

In conclusion, Chevalier states that this drug merits a place in contemporary therapeutics, from which it has fallen, chiefly because of the absurd and ridiculous uses to which it has been put by the homeopaths.

ARTHRITIS DEFORMANS.

In the *Journal of the American Medical Association* of October 8, 1904, SKINNER gives the following advice. He thinks it is sufficiently difficult to benefit these patients materially even when we use all the resources at our command; this implies the desirability of giving them the benefit of everything that is known to exhibit helpful properties, and brings up the question, "What are the most advantageous therapeutic combinations?" That which has given the most satisfaction as a routine treatment, to be modified according to the conditions surrounding the individual cases, is as follows:

1. A diet as generous as can be digested and assimilated by the individual case, and consisting largely of red meats.

2. Rest in bed for at least ten hours out of the twenty-four.

3. A pill consisting of 1/40 of a grain of strychnine sulphate and 1½ grains of ferrous iodide three times daily half an hour before meals, and in the emaciated cases 1 to 4 drachms of cod-liver oil three times daily, after meals.

4. A dose of some one of the mineral waters before breakfast every two or three days, if constipation is present.

5. A body dry hot air treatment two or three times weekly.

6. Central galvanization once or twice weekly.

7. A general application of mechanical vibratory stimulation two or three times weekly.

8. A static electrical application at least once every day, consisting, in acute cases,

of the Morton wave current localized over the affected joints or spine, and in the chronic cases of long, thick sparks to the affected joints one day, and the Morton wave current localized over these joints the next. In some cases some one of the high-frequency currents, applied either locally or generally, may advantageously replace some of these static applications or be added to them.

9. With ankylosed joints, wherein the acute condition has subsided and the functional impairment is not due to osteophyte formation (in the author's experience it has not frequently been due to this condition), passive movements every day, in the form of alternate forced flexion and extension, the attempt being made to increase the excursion of the manipulated member each time, are of considerable use. The movements should not be violent enough to produce sudden breaking down of the offending tissue or to cause the patient much pain; otherwise the original pathological process is very likely to be reawakened and the last condition of the victim will be worse than the first. The effects of these movements should be carefully watched, as this same evil result will follow if they are commenced too early.

A COMPARISON OF ANESTHETICS AND THE VALUE OF CHLORETONE TO PREVENT PREANESTHETIC NAUSEA.

BEEBE in the *Boston Medical and Surgical Journal* of October 6, 1904, writes on these subjects and states that there does not seem to be any class of cases in which ethyl chloride has any advantage over either gas or anesthol, while its expense is a distinct disadvantage in a large clinic. Again, its record for safety has not proved equal to gas and anesthol. As between the last two mentioned, each has its special recommendations. In a large clinic where speed is required gas is by far the more desirable. The absence of odor also tends to make gas the more popular. In alcoholic or powerful individuals who take gas poorly, however, or where there is some heart or lung complication, anesthol has proved a very efficient adjunct. The writer does not consider the uses of the three drugs in minor surgery.

The prevention or lessening of nausea

and vomiting after ether is a matter in which there has been very little advance in recent years. The writer has endeavored to approach this subject in two ways: first, by limiting the amount of ether used; secondly, by the action of chloretone. The cone has been kept away from the patient as much as possible, and the total amount of ether made as low as possible. Chloretone in amounts from 5 to 30 grains, given in 5-grain capsules, has been used in 164 cases. The best results have been obtained in adults with 10-grain doses given twenty to thirty minutes before starting the anesthetic. If given inside of twenty minutes the patient is liable to vomit soon after the anesthetic is started, thereby losing all the benefit of the drug. Out of the total 214 cases, 119, or 55½ per cent, were conscious of no nausea after ether. Of these 119, 97, or 81½ per cent, had had chloretone, while 22, or 18½ per cent, had had none. Sixty-seven out of 164 cases were nauseated in spite of the chloretone, while 28 out of the 50 who had had no chloretone were also nauseated. One hundred and twenty-eight out of 214 cases, or 60 per cent, were conscious of no vomiting. Of these 128 cases, 105, or 82 per cent, had had chloretone, while 23, or 18 per cent, had had none. Fifty-nine out of 164 who had had chloretone vomited, while 27 out of the 50 who had had none vomited. It is only just, however, to say that 18 per cent of those who had had chloretone vomited once or twice before the return of consciousness. Of the abdominal cases, 72 had chloretone; 35 were conscious of no nausea, and 37 were conscious of no vomiting—practically 50 per cent. Out of 9 inguinal hernias 7 had no nausea or vomiting. Of 13 gastroenterostomies 7 had no nausea, and 8 no vomiting. Of the 214 cases, 9, or 4 1/3 per cent, complained of headache after the ether recovery, divided between general and frontal. Seven of these had had chloretone. Five cases had some cough after the operation.

While chloretone has not always proved a reliable specific in preventing nausea and vomiting, it has been a great aid. The patients make a quicker recovery than when nothing is given. Vomiting, when present, is likely to take place before the return of consciousness, so that the patient has no distinct recollection of the occurrence. In more than half of the cases

there was no conscious nausea or vomiting, a great benefit not only to the patient, but to the nurses and friends. The writer believes it to be well worth a good trial.

THE TREATMENT OF POSTPARTUM HEMORRHAGE.

In the *London Practitioner* for October, 1904, BERRY HART writes on this subject, and sums up the main points as follows:

During the labor one must avoid the extremes of undue delay and undue haste. Forceps and turning when necessary should be employed, whenever possible, with dilated parts. The third stage should not be hurried, as meddlesomeness exhausts the uterine muscle. One should let the uterus in a normal case separate the placenta and membranes, but the expulsion may be aided by suprapubic pressure.

In hemorrhage, settle the diagnosis with reference to its occurrence in the passive or active portions of the genital tract; for the former, pressure or stitch; for the latter, all that secures uterine retraction, but failing this pressure by tampon has to be considered.

Discussing the same subject in the same issue of the same journal PHILLIPS says that if we presume that the placenta has been delivered, and that the woman begins to bleed profusely within a few minutes, what course are we to adopt to arrest it? In the first place it must be remembered that a few seconds of the hemorrhage that one meets under these conditions is sufficient to reduce the patient to a very grave condition; and secondly, anything that is done must be done quickly, if it is to be efficacious. The author's plan in cases where this hemorrhage begins, and the uterine outline is extremely difficult to feel, is to resort at once to bimanual pressure, after clearing out any clots in the uterine cavity. The right fist is pushed up into the anterior cul-de-sac against the anterior uterine wall; the left hand is placed flat upon the posterior part of the fundus, and presses it directly downward on to the right hand. By this means absolute control for an almost indefinite time can be obtained over the loss. During this maneuver the nurse should be instructed to inject into the buttocks the ergot-and-strychnine solution, and to get ready the sterilized hot water (tempera-

ture of 118° F.), with the glass intra-uterine tube. When the uterus shows signs of contraction, the glass tube should be introduced into the cavity, and at least a quart of the hot water allowed to run through it. This often produces a very considerable increase in the uterine tonicity. If after trying the bimanual method and the hot water the hemorrhage still goes on, a Sims speculum should be passed into the vagina, and the uterine cavity plugged with sterilized gauze, or a solution of adrenalin applied to the interior, at the same time observing whether from any laceration of the cervix, vagina, or perineum any large amount of blood is being lost.

Treatment of the Patient after the Arrest of the Hemorrhage.—Those who have the misfortune to encounter a severe case of postpartum hemorrhage will always find that, even when the bleeding has been arrested, the patient's condition still requires very serious and prompt attention. Her appearance and symptoms are characteristic enough; the cold, clammy sweat, the *besion de respirer*, the flickering pulse, and the pinched aspect require no further description, and the only efficient remedy is at once to make an injection of saline fluid, a teaspoonful to a pint, into the body. It is usual to give a rectal injection of at least two pints first; as much as four quarts can be administered with advantage if the patient can retain it. If this is returned or fails in its action, then the fluid should be injected into the cellular tissue about the breasts by means of a sharp-pointed trocar attached to the douche-can.

Finally, if this is not efficacious, intravenous injection must be practiced. This is best carried out by placing a ligature round the upper arm well above the elbow, so as to bring the veins of the forearm into relief if possible. The skin should then be cleansed in the usual way, and with a sharp scalpel an incision is made about two inches long over the median basilic vein. This latter is then carefully isolated from the deeper structures, and two ligatures passed round it by means of an aneurism needle, leaving an interval of about half an inch between them. The lower ligature is tied at the inferior angle of the wound and its ends cut short; the upper is left loose. The vein is now

opened; a glass cannula with a blunt end is passed upward, and the upper ligature is then tied round it and the vein. The saline solution should then be slowly allowed to enter the circulation.

Additional means of relief are bandaging the limbs and elevating the foot of the bed by six-inch blocks.

Concealed postpartum hemorrhage is usually due to too great a hurry in the application of the binder; but there is also the hemorrhage which occurs into the dilated uterus in so-called hour-glass contraction, which is of different origin. It may occur any time within twenty-four hours of delivery; the symptoms are well known, and the fundus uteri on examination will be found considerably above the level of the navel, instead of slightly below it. If this is the case, the sooner the clot is emptied from the cavity of the uterus the better; and if any decidua remains are present, opportunity should be taken of getting rid of them also.

With regard to traumatic hemorrhage, this arises from laceration of a large vessel in the cervix, vaginal wall, or perineum; and should an excessive lochial flow still go on after the uterus is well contracted, one would most strongly advise that the patient be placed upon her back, with the long axis of the body transversely to the bed, the buttocks being well over the edge of the bed and the knees drawn up, and that then a large Sims speculum should be introduced. Should the hemorrhage be coming from the cervix, a deep suture passed with a curved needle beneath the bleeding points would be sufficient to arrest it. If the hemorrhage arises from a vessel in the vagina or perineum, its ligation and complete control of the circulation is a very simple procedure. If slight rupture of the uterus in its lower segment has occurred, careful packing with sterile gauze will be, as a rule, sufficient.

Secondary postpartum hemorrhage may occur at any time after the lapse of twenty-four hours subsequent to the termination of labor; and although it is not common, one occasionally meets very severe cases of it. The writer encountered one in which the patient was reduced to a moribund condition as the result of the mental emotion produced by the removal of three sutures in the perineum ten days

after labor. The treatment is obviously that of other hemorrhages, and requires no special mention.

PREVENTION OF PUERPERAL INFECTION IN PRIVATE PRACTICE.

In the *Lancet* of August 13, 1904, BYERS enunciates the following rules:

Nurses and students should be taught clearly the risks of vaginal examination, and the great value and absolute safety of replacing this method by abdominal palpation. So far back as 1886 Credé wrote: "Even the simplest manipulation may cause infection. It should therefore be laid down and taught as a fundamental principle that internal examination of parturient women should be altogether avoided or restricted within the narrowest possible limits. It can be very well replaced by external examination. To instruct their pupils as thoroughly as possible in this method is the present and future duty of teaching institutions." Have we teachers done our duty in this respect? Is it not too often the case that reliance for diagnosis is placed on vaginal examination alone employed as a mere matter of routine to see how the labor is proceeding, while the danger involved in such a method is not fully realized? While the author was taught by others the vaginal method, he subsequently taught himself the abdominal plan of examination, and the more he has used this latter method the greater he has appreciated its value. The man or woman who employs this method (as has been the experience with students in maternities), will be more accurate in his or her diagnosis, and will rely less and less on the vaginal route. In many confinements during the past few years the writer has not made a single vaginal examination, as the external plan gave all the information required. The only thing one cannot yet be sure of is prolapse of the cord when the membranes rupture. If in a normal case an external examination is to be made at all the best time is just after rupture of the membranes.

In the "Directions to Midwives," framed by the Central Midwives' Board, no reference at all is made to the importance of abdominal palpation, although candidates are required before being ad-

mitted to an examination to produce a certificate certifying they have attended and watched the progress of not fewer than twenty labors, making abdominal and vaginal examinations during the course of the labor, and personally delivering the patient; and among "Duties to Patients," "no more internal examinations should be made than are absolutely necessary," which is ambiguous, as it raises, without answering, the question, How many are absolutely necessary? and, by omitting any notice of the abdominal method, it tends to emphasize the fact that the vaginal examination is the only method to be employed. The author often meets at confinement cases nurses who are wonderfully skilful in abdominal palpation, and he prefers to recommend his patients to midwives who make no vaginal examination.

Dr. R. D. Purefoy, whose term of office as Master of the Rotunda ended on October 31, 1903, and who supplied the author with the statistics from that institution, writes: "In most of the cases in the hospital no vaginal examination is made. In some one is made. Where necessary, of course, this is repeated." The author is not prepared to deny that a woman who has never been examined at the time of her confinement may subsequently develop sepsis. He has seen such cases, and Dr. Purefoy states that at the Rotunda "in some of the fatal septic cases no vaginal examination had been made before the trouble arose;" but such cases are extremely uncommon and may be due (1) to the introduction of the gonococcus shortly before labor; (2) contact by the patient's fingers touching the genitals; (3) contact with dirty clothes or a dirty bed; and (4) Whitridge Williams's account of the bacteriology of the inner surface of the labia minora and hymen shows how easily a wound there in a natural labor might allow pathogenic organisms to enter. Still, admitting all this, the results of modern maternity hospitals show beyond question that vaginal examinations are the main source of puerperal infection.

Nurses and students should be taught more and more clearly the cause of puerperal infection—viz., that it is introduced from without—and also the importance of keeping themselves and the patient aseptic, and how extremely easy it is for the disease to be introduced.

It should be clearly recognized that in at least 75 per cent of the cases labor is a natural process not to be interfered with, and that, as has been well stated by a recent writer (Edgar), "the whole process of labor, properly considered, is a conservative process, the tendency of which is to prevent sepsis, and it should be our aim not to thwart this process or supplant it by methods of art but to follow and aid it, interfering only when, for one reason or another, the resources of nature prove inefficient." It was a well known saying of the older school of obstetricians that "meddlesome midwifery is bad," and surely vaginal examinations unless clearly indicated, the uncalled-for use of the forceps, early rupture of the membranes, douching unless in very special circumstances, and any interference with the third stage of labor (such as manual removal of the placenta), are all examples of meddlesome midwifery. When, however, interference is necessary during the course of labor the same precautions should be taken as regards patients, instruments, and our hands and arms as are now employed in abdominal operations. Attention has been drawn by several writers recently to the midwifery bag as being a "weak point in the obstetric defense of the woman in labor against the assaults of sepsis" (Bal-lantyne). The author recommends the following plan, which he has used for the past five years with the best results: After the use of the forceps, or any other instrument, it is carefully washed with soap and water and a nail-brush, dried, and rolled up in a towel or paper and taken home without being replaced in the obstetric bag. It is subsequently sterilized at home by boiling, dried with a sterilized towel, and placed in a sterilized bag, which is put in the large midwifery bag. When required at a confinement it is taken out of its own sterilized cover and placed in boiling water before being used.

There are three other precautions which are of considerable importance as preventing indirectly the occurrence of puerperal infection:

1. The careful general examination of pregnant women is important, so that at an early date we may detect a flaw in any of the organs (heart, kidneys, lungs), the knowledge of which may lead to the adoption of a judicious prophylactic treatment,

and so maintain the patient's strength and health and resisting power.

2. A few weeks before the expected date of the confinement—especially in a primipara—a careful abdominal examination should be made, so that we may learn the presentation and position of the fetus, the amount of liquor amnii, and the presence or not of an abdominal tumor; and if there is the least suspicion of deformity the pelvic cavity should be measured.

3. The immediate repair of any laceration of the pelvic floor following delivery is a most important point in the prevention of puerperal infection.

"INTERRUPTED CIRCULATION" AS A THERAPEUTIC AGENT.

EWART, of London, in the *Lancet* of August 13, 1904, states that artificial anemia, kept up for periods of five minutes, seems to have been the essential feature in the cure of a case of Raynaud's disease by the tourniquet reported by Harvey Cushing from Osler's clinic. Cushing takes a neurological rather than a mechanical view of the action of the remedy, and says: "It depends seemingly in principle upon the physiological 'blocking' effect of the elastic constriction on the peripheral vasomotor nerves." The simpler view seems to be that the emptied arteries suddenly receive a ramming charge when the tourniquet is removed, and that the internal surface of the capillaries and of the lymphatic spaces in which they are immersed is submitted to sudden stimulation; whilst, on the other hand, during the preceding stage of ischemia a certain amount of suction must have existed within them not only owing to the collapse of the elastic tissues, but also from the intravascular negative pressure set up by the procedure. The tendency would be for the emptied blood-vessels to suck up some of the remaining tissue-lymph, or in cases of inflammation some of the more fluid inflammatory exudates. Of these two actions, that of the forcible arterial flushing and that of the suctional tissue drainage, it is hard to say which might be the more efficient therapeutic agent in affections of inaccessible tissues such as bone, bone-marrow, articular cartilages, and synovial membranes. In rheumatoid arthritis, with its special

features of immobilization of the joints and of stagnation of the lymphatic circulation, they would both fulfil direct indications; and it has proved to be so in the cases reported by the author. But a variety of other tissues and of other conditions might be equally benefited, and in addition to any further observations in these wider fields of work, the author hopes to hear of the larger experiences of others.

The technique which was employed is exceedingly simple. A padded armlet of soft leather, or failing this, a circular pad of lint and cotton-wool of sufficient thickness to protect the nerves, having been secured round the upper arm or the thigh, a loop of india-rubber tubing of suitable thickness is passed behind the limb over the pad, and the two ends of the loop are strongly put on the stretch with one hand. The other hand immediately grasps the tubes close up to the front of the limb, thus tightening the loop into a strong ligature or tourniquet. The degree of arterial occlusion depends upon the strength with which the two ends of the loop are pulled up, the limb having previously been drained of much venous blood by raising it and by stroking the larger veins empty. The compression has for its effects quickly to induce cutaneous blanching and numbness of the extremity, similar changes doubtless taking place through the thickness of the limb. For ordinary purposes half a minute or at most two minutes of this will suffice. The tube is then let go, and this is at once followed by a bright cutaneous flush of capillary injection and a pleasant feeling of warmth. The same maneuver is then repeated, say six times, at intervals of a few seconds. Two or more such sittings may be used daily.

REDUCIBLE HERNIAS TREATED BY ALCOHOL INJECTIONS.

STEFFEN (*Medical Record*, June 18, 1904) gives the results of his treatment of 1182 cases of reducible hernia by Schwalbe's method of injecting into the tissues around the neck of the sac (not into the sac itself) from two to three grammes of 20- to 70-per-cent alcohol. The principle of this is that a connective tissue hyperplasia should follow such an irritation, especially since alcohol is be-

lieved to be prolific of such hyperplasias and scleroses in the internal organs. The injections were made daily for from four to fourteen days, according to the tolerance of the patient and the degree of subsequent reaction. After a week or two of rest the treatment is resumed. The result is a diffuse sclerosis around the neck of the sac, which latter shrinks and finally closes completely. With umbilical hernias, adhesive plaster strips were used simultaneously; with other varieties the truss was employed.

In 1891 Steffen published the results in 293 cases, a cure being effected in 80 per cent of the small and medium sized reducible hernias. The longest duration of treatment was four years, the shortest one year.

Steffen's modification of the Schwalbe treatment consists in the substitution for the alcohol of a mixture composed of 100 grammes of 50-per-cent alcohol with ten drops each of dilute phosphoric acid and formalin. In an occasional case in which this mixture fails to bring about the necessary local reaction, he substitutes an injection of one or two grammes of extract of oak bark, which always occasions a very strong reaction. Solutions of tannin induce suppuration and necrosis and should not be employed.

From December, 1886, to the spring of 1902 Steffen has treated 1052 patients with 1372 hernias, but only 901 patients with 1182 hernias are available for analysis.

Of the hernias, the inguinal constituted 88.15 per cent; crural, 7.02; umbilical, 3.90; and hernia through the linea alba, 0.93. The initial results were: cured, 75.3 per cent; improved, 7.1; and not improved, 17.6. As a result of treatment the region of the injected area is harder than normal. The invaginated finger no longer enters an orifice, but abuts against a thick-walled cushion.

Of the cures, 178 have persisted from eleven to sixteen years; 305 between six and ten years; and 221 from one to five years. In 77 cases the cure persisted till death, or disappearance from observation. Of the 17.6 per cent not improved, about one-half offered no evident cause for the failure, but in the other half failure was attributed to the existence of chronic bronchitis and emphysema (19 cases);

cough of influenza (4); emaciation with flabby musculature (6); and obesity (5).

Of the cured, 111 (or 12.5 per cent) relapsed, the causes of relapse being the same conditions and in the same proportion as those which caused failure to cure. About one-third of the relapses presented no obvious cause. Relapsed cases can be treated again in the same way.

The treatment of reducible hernias by Schwalbe's method, as modified by the writer, yields about 75 per cent of initial cures, so that the patient can do all sorts of work without a truss, and upon examination no hernia can be demonstrated. The duration of the treatment is at least one year, in the case of small and recent hernias. The larger the hernia—that is, the wider the orifice—and the older the hernia, the longer the time necessary for a cure (two or three years, or more). In most cases the patient can go about as usual, and the treatment is carried out at increasingly lengthened intervals. Very wide apertures demand at the beginning daily injections of small doses with rest in bed.

In general the method is applicable to all reducible hernias which can be retained by a truss. Hernia partially retainable can, as a rule, be improved, so that by aid of a truss the patient can work again efficiently. The method is suitable for all ages, and it involves no narcosis and no long confinement; it is preferable to the radical operation in the aged.

A cumulative treatment compressed into a short time is not to be recommended, as the initial acute inflammation induced must be transformed into a chronic stage, and for this a longer time is needed. A toxic subsidiary action (*e.g.*, urticaria) is rarely observed. With the proper care and reference to the anatomical conditions, unfortunate accidents are extremely rare. The procedure cannot, however, be said to be absolutely without danger. The mortality is about 0.04 per cent, as against 0.34 per cent with operative treatment.

For initial results the injection method evidently cannot compare with the radical operation, as the latter yield nearly 100 per cent of initial successes, but relapses occur about as frequently by one method as the other.

As the injection treatment is one within the reach of every physician, is simple,

and does not demand developed surgical technique, it is worthy of greater consideration. The writer does not prefer it to the radical operation, but has found it particularly useful in patients who will not submit to the latter procedure.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

Vomiting is the earliest, most prominent, and persistent symptom of congenital stenosis of the pylorus, and its characteristics therefore merit the most careful attention. At first the quantity regurgitated is not more than an ounce or so, but this amount is vomited at frequent intervals. Gradually, with increasing gastric dilatation, larger quantities are brought up, and the intervals between the vomitings are increased until in a well marked case the child takes and retains several feedings before ejecting a large portion of any of them at one time. The vomiting is unaccompanied by nausea or sign of collapse, and the material never contains bile. It consists chiefly of fluid resembling whey, and some flocculi or small curds. The tongue is clean and raw looking; the breath not foul, though frequently the buccal cavity is affected with parasitic stomatitis.

Where large quantities of fluid are vomited at one time, dilatation of the stomach can be demonstrated by inspection, palpation, and percussion. With the infant stripped and placed in a good light, the outline of the dilated stomach can be seen extending downward to or beyond the level of the umbilicus. Visible gastric peristalsis is generally well marked, the contractions passing in waves from left to right. Palpation of the pylorus is often impossible, unless a few whiffs of chloroform be given. It can be felt generally as a hard nodule about the size of a hazelnut, but more elongated, and giving the sensation of a firm, fibrous body.

As to the condition of the bowels, constipation is the rule. The character of the motions will vary with the amount of nourishment that finds its way into the intestines. Generally the movements are small, dry, and contain scybalæ, but it is not unusual for two or three small and fairly normal bowel movements to occur daily.

MCCAW and CAMPBELL (*British Medical Journal*, June 25, 1904) report one case on which they performed pyloroplasty. The child continued to vomit persistently, and died on the sixth day after operation. At autopsy the line of suture was found intact. The pylorus readily admitted a cedar pencil, but when the stomach was filled with water from the tap, not a drop passed into the duodenum. This was due to the redundant mucous membrane at the pyloric orifice falling together in folds and blocking the passage.

The small intestine was so small and collapsed that its lumen was almost obliterated. It would have been absolutely impossible to perform a satisfactory gastroenterostomy since this has been attended by a prohibitive mortality in similar cases.

Notwithstanding the unfavorable termination of this case, the writers would be inclined to try pyloroplasty again, endeavoring to obviate the danger of blocking, by free resection of the redundant mucous membrane and the insertion of a small bone bobbin.

REMOVAL OF THE SEMICIRCULAR CANALS FOR UNILATERAL AURAL VERTIGO.

LAKE (*Lancet*, June 4, 1904) reports the case of a woman aged twenty-one years, who had been subject to attacks of aural vertigo, combined with nausea and vomiting, with gradually increasing unilateral deafness and tinnitus; the whole duration of the disease being five years. The attacks progressively increased in frequency, often recurring after an interval of only one day, though for two years or more she had never been free from an attack for a period of more than two months. The condition was progressive, in spite of prolonged medical treatment, and finally excision of the semicircular canals was advised.

A modified radical mastoid operation was performed. The innermost portion of the posterior wall was not removed, and the bony opening in the temporal bone was enlarged forward, upward, and backward. Anteriorly it was extended into the base of the zygomatic process of the temporal bone, and posterosuperiorly in such a way that the long diameter of the bony wound was from above, downward, and forward. The malleus and incus were

removed. At this period of the operation the burr was substituted for the cutting gouge.

The anteroexternal portion of the external semicircular canal was followed forward and inward, until the outer surface of the superior canal was exposed and removed by cutting with a medium-sized burr, leaving only the upper part of the arch or fornix untouched. The posterior rim of the external canal was followed, so as to bring into view the posterior canal, which was burred away entirely. The only remaining canal was cut away until the anterior half of the membranous canal was exposed and then removed with a small burr. A medium-sized opening was drilled into the vestibule and an attempt made to clean away the crista acustica at that end of the canal. The external meatus was divided longitudinally through its posterior wall, and the wound was packed and closed.

At the end of four weeks there had been no return of vertigo, and during the three months since operation the patient has enjoyed better health than for the last few years. The tinnitus was absolutely uninfluenced by the operation. The hearing power, however, underwent a most extraordinary change. The voice, which had been heard before at a distance of only two feet, was now heard well at five feet. The bone conduction, which had previously been —30 seconds, was now —25 seconds; but whereas the patient had heard the tuning-fork (although very poorly) before, she was unable to detect its sounds by air conduction afterward.

ABDOMINAL ANEURISMS—SURGICAL TREATMENT.

The only methods of operative treatment considered at the present day for aneurism of the iliac arteries are ligation and Matas's operation. In aneurism of the other smaller abdominal vessels, ligation or excision is indicated. Morris states that there are only twenty-one cases of aneurism of the renal arteries on record. Caton could find only eleven cases of aneurism of the hepatic artery. Aneurisms of the splenic and mesenteric arteries are pathological curiosities.

Aneurisms of the abdominal aorta are not common; they form but 5 to 10 per

cent of all aortic aneurisms. Men are affected about seven times more frequently than women. They occur most frequently between the ages of twenty-five and fifty, and chiefly, if not altogether, in those who have had syphilis for some years.

Within the last few years MAUNSELL (*British Medical Journal*, June 18, 1904) has seen six cases of abdominal aneurism; five were males and one female; the age of the patients varied from twenty-four to thirty-seven years. Five of them had syphilis.

At least fifty per cent of abdominal aneurisms arise from the aorta above the superior mesenteric artery, the origin of the celiac axis being the part most commonly involved. About half of the cases tend to grow at the expense of the anterior wall of the aorta, the remainder growing backward, eroding the vertebrae or ribs. The aneurism may be fusiform, sacculated, or dissecting, or may present a combination of these primary forms.

General arterial disease usually coexists, and intrathoracic aneurism may be present. The frequency of digestive symptoms, emaciation, obstinate constipation, and pains referred to the shoulder or back often lead to an erroneous diagnosis. In women, according to Foot, the symptoms may be few and the disease entirely overlooked.

Spontaneous cures are not unknown, and consolidated aneurisms have been found in persons dying from some other cause; but the ordinary termination of the disease is death from hemorrhage, within a period varying from a few months to three years subsequent to coming under observation.

Treatment by absolute rest and starvation is inefficient, but may be employed in a modified form in connection with any of the more modern methods. The administration of large and increasing doses of potassium iodide is theoretically correct and has done good in many cases. Calcium chloride is undoubtedly establishing itself in the favor of surgeons.

The "needling" of Macewen and the galvanopuncture of Velpeau are uncertain and safe only after laparotomy and exclusion of the aneurism.

Hunner has collected all the published cases of wiring the sac, both thoracic and abdominal, up to 1900. There were 14

operations, with 3 cures and 11 deaths; in 9 of the fatal cases necropsy showed that the wire had induced firm clotting. Of 8 cases of abdominal aneurism treated by wiring 3 were cured. Those cases did best in which 5 to 6 feet of wire was used.

Hunner has found 23 cases of thoracic and abdominal aneurism treated by the Moore-Corradi method of passing a current from a galvanic battery along the wire after its introduction. Four were cured, and one considerably benefited, while in 10 death was probably hastened. Of 8 cases of abdominal aneurism treated by the Moore-Corradi method only one was cured. Nevertheless it probably is a better operation than simple wiring.

Thirteen cases of permanent proximal ligature of the aorta have been recorded; 9 of these were for iliac aneurism, 2 for hemorrhage from the iliac artery, and 2 for aortic aneurism. All these cases ended fatally, within a period varying from a few hours to forty-eight days, from shock, secondary hemorrhage, or gangrene and sepsis.

Milton suggests temporary proximal compression of the aorta by means of an elastic band passed through the lumbar muscles; the ends of the band, protruding behind, being drawn upon at will.

Keen has devised an instrument for temporary proximal clamping of the aorta. He states that, in dogs, the aorta may be clamped for as long as from 24 to 110 hours without causing permanent changes in the parts below the obstruction. Morris records a case in which he employed temporary distal compression by means of a rubber catheter passed around the aorta, at a point two inches below the aneurism and one and one-half inches above the aortic bifurcation. On removing the constricting band at the end of twenty-seven hours, the aneurism was found completely consolidated, but the patient died three days later from intestinal injury caused by the catheter clamp. This method is worthy of further trial.

Stratton advocates gradual occlusion of large arteries by means of a waxed tape, worked on the principle of an *écraseur*, being tightened or loosened by means of a special instrument.

Matas practices an operation in which, during proximal control of the circulation, the sac is laid open, cleared of clot,

a portion is sutured to represent the original vessel, and the rest of the walls infolded by means of several layers of sutures. He has performed this operation successfully four times in aneurisms of the extremities. Morris thinks Matas's operation could be applied easily to abdominal aneurisms.

With a careful choice of one of these methods of operation, a fair proportion of cases apparently doomed to certain death may be saved.

SUPRARENIN.

MUELLER (*Münchener medicinische Wochenschrift*, Bd. li, Heft 5 u. 6) presents the following report of his experience with suprarenin as a hemostatic in 74 operations on dogs: (1) Suprarenin has a very marked constricting action on blood-vessels. (2) It produces instantaneous ischemia when employed in a solution of 1:1000 or 1:2000. To produce local anemia of parenchymatous tissues, solutions of the strength named must be employed; if the skin, fatty and muscular tissues are to be made anemic a solution of 1:5000 to 1:10,000 is sufficient. Anemia is complete within two minutes. (3) Ten cubic centimeters of a solution 1:1000 may be injected in an adult without fear of toxic symptoms. (4) In the concentrations mentioned, suprarenin has no deleterious effect on the living cell. (5) The solution may be sterilized by boiling. (6) In solutions weaker than 1:2000 it is unstable; rose-colored solutions are as active as colorless solutions; turbidity or dark discoloration indicates decomposition, and the solution should not be used. Dilute solutions always should be freshly prepared. (7) When used in a solution of 1:10,000 to 1:20,000 suprarenin possesses a marked stimulating action on the heart. As much as one cubic centimeter of the solution may be injected into the myocardium without injury to the animal. (8) Its hemostatic action commends it for use in individuals afflicted with heart disease, anemia, or cachexia. (9) Since it prevents parenchymatous hemorrhage, it is especially valuable in operations on the liver or kidney. (10) To obtain prompt action, it should be injected directly into the tissues. (11) In all tissues it produces an absolute closure of the capillaries, small

arteries, and veins, and constricts the larger blood-vessels. (12) Its action is shown by the appearance of yellow discoloration. (13) The effect is durable, sometimes persisting for several hours. (14) Secondary hemorrhage after the use of suprarenin has never been observed, and is not to be feared. (15) The drug is readily soluble in water, therefore its dose can be carefully calculated. It acts best when dissolved in normal salt solution. (16) The injections are painless, and may be advantageously used in conjunction with local anesthesia. (17) The best instrument for the injection is a 5 cubic centimeter syringe fitted with a long, thin needle. For injections into the liver a blunt needle with a lateral opening is best.

Most of the author's experimental operations were absolutely bloodless, a small number being accompanied with slight bleeding.

LUMBAR ABSCESS TREATED BY ASPIRATION AND INJECTION OF IODOFORM-GLYCERIN EMULSION.

Investigations already made in regard to aspiration of lumbar abscess and injection with iodoform and glycerin emulsion have shown that it is of great benefit in many cases. LUDLOW (*Journal of the American Medical Association*, July 2, 1904) contributes a summary of his experience in six cases.

Four of the cases gave a family history of tuberculosis. Five occurred in females from seven to thirty-nine years of age, and one in a male of twenty-five years. Two patients gave a history of pain in the back. In three cases two aspirations were made, in one case three, in another four, and in another ten.

The urine from four cases out of the six gave a reaction for iodine the day after injection. This reaction disappeared after two or three days, except in one case, in which it persisted for two weeks.

Slight mental depression was noticed in two cases. As a general rule there was an elevation of temperature varying from 2 to 4 degrees following each operation.

The cultures were sterile in every case except one, in which the bacillus proteus vulgaris was obtained.

There has been no indication of a return of the abscess in any of the cases. Since the last aspiration five years have elapsed

in one case, three years in another, two years in a third, and one year or less in the remaining three cases. There was a marked improvement in the general health of every patient.

INTERSTITIAL SARCOMA OF THE TONGUE.

In analyzing six cases of interstitial sarcoma of the tongue, KEENAN (*Annals of Surgery*, June, 1904) states that these cases all belong to the group of round-celled sarcomata. They occur during middle life, the majority between the ages of forty and fifty, though one occurred as early as twenty-eight. Extensive metastases in the neighborhood is the exception rather than the rule. As a group they differ from the ordinary round-celled sarcoma in their relatively slow growth. In two cases there was no recurrence after operation. In two cases in which there was no apparent glandular involvement metastases were found in the abdomen.

The clinical diagnosis of these tumors presents some difficulty. They are distinguished from cancerous growths by the fact that the epithelium usually remains intact, or only ulcerates after a long period. From gummata they ought to be distinguished by the therapeutic history and other manifestations of syphilis.

While there may be recurrence, either local or distant, results justify wide excision of the tumor. The slow growth in many cases suggests that if excision be done at an early date, the results should be most favorable.

UREMIA TREATED BY LUMBAR PUNCTURE.

In the course of a severe epidemic of scarlet fever, characterized by an unusual frequency of nephritis, with many deaths from uremia, SEIFFERT (*Münchener medizinische Wochenschrift*, 1904, No. 10) observed that every case of uremia upon which lumbar puncture was practiced recovered.

The punctures were made between the twelfth dorsal and first lumbar vertebrae, and from 5 to 30 grammes of fluid was removed.

The most remarkable case was that of a schoolboy in whom a postscarlatinal

nephritis was accompanied by pronounced anasarca. The patient was comatose when the puncture was made. A half-hour later he was perfectly conscious, sat up in bed, and asked for food. The following day another paroxysm occurred, but it yielded to a second puncture, after which convalescence was uninterrupted. The writer has not employed lumbar puncture in any cases of uremia except those due to nephritis of scarlatinal origin.

PRIMARY CARCINOMA OF THE VAGINA.

Primary carcinoma of the vagina as usually seen, according to *American Medicine* of April 9, 1904, is a circumscribed neoplasm, and rarely comes under observation at the period of a cauliflower-like growth, in the vaginal walls. When the patient first seeks advice it is usually with a broken-down ulcer, presenting a crater-like aspect with an infiltrated base, and showing a tendency to involve the underlying structures. The affection may also be met in the form of a diffused neoplasm, involving almost the entire vaginal surface, and converting the canal into a rigid, unyielding tube. In both forms the lymph nodes are secondarily involved at an early date.

The symptoms observed in the early stages simulate those of carcinoma of the cervix. The disease, which from the beginning is superficially seated, bleeds easily from the slightest touch, especially during coitus, and this symptom must be considered as one of most importance. As in carcinoma of the cervix this symptom appears in many cases at a late date in the development of the affection. In women who are cleanly, and who observe themselves carefully, a more or less disagreeable odor first draws attention to the genital organs. Unfortunately the presence of suppuration or ulceration within the vagina is the condition which usually causes the patient to seek advice; and this indicates that the affection is already advanced. Since the connective tissue of the pelvis is involved rather early in the course of the disease, there are symptoms of general cachexia at an early period. Added to these, phenomena occur which indicate that the neoplasm has involved other organs, such as the rectum, and in rare cases the bladder (when the disease starts in

the anterior vaginal wall), often forming either a rectovaginal or a vesicovaginal fistula.

There are few if any difficulties in the diagnosis of vaginal carcinoma. On digital examination the growth is detected readily by its peculiar, uneven surface, its tendency to bleed easily, break down, and the more or less extensive infiltration of neighboring structures. A similar breaking down and extension into the neighboring organs may result from syphilis or tuberculosis, but the history, the age of the patient, and the local examination will usually clear up doubt as to the true nature of the disease.

Primary tuberculosis of the vagina is extremely rare, and is usually present only when tuberculosis of the vulva or uterus is manifest. A microscopic examination should aid the diagnosis. The prognosis of vaginal carcinoma is very bad, and it is only by early radical interference that it can be improved.

CHRONIC POSTERIOR URETHRITIS— TREATMENT.

In all cases of chronic posterior urethritis, not only are the mucous and the submucous tissue of the prostatic urethra involved, but in addition rectal examination generally shows an enlarged, tender prostate gland, due to follicular inflammation and consequent general hyperplasia.

Aside from recurrent urethral discharge, the most prominent symptoms are those of sexual neurasthenia, and more or less constant irritability of the bladder. Frequent and imperative urination, with constant pain at the end of the penis, pain and fullness in the perineum, slight vesical tenesmus, sexual debility, as shown by imperfect erections, premature ejaculation, and prostaticorrhea, together form a chain of symptoms which, following upon a recent attack of gonorrhea, point unmistakably to the existence of a chronic inflammation in the deep urethra.

Those cases in which vesical irritability is the most prominent symptom CHRISTIAN (*Therapeutic Review*) treats by irrigation of the deep urethra with solutions of either potassium permanganate 1:8000, increasing the strength to 1:4000, or nitrate of silver 1:8000, increasing to 1:4000. This irrigation is followed by instillation into the the deep urethra of about ten drops of

a one-per-cent solution of nitrate of silver. Irrigation is performed by the introduction into the deep urethra of a soft-rubber catheter to which is attached the nozzle of a fountain syringe. About eight ounces of the irrigating fluid is allowed to pass into the bladder, when the catheter is slowly withdrawn, the solution passing through it and irrigating the prostatic urethra as it is withdrawn. After removal of the instrument the patient expels that portion of the irrigating solution which entered the bladder, thereby bringing still more of the medicated solution in contact with the mucous membrane of the pars prostatica.

This treatment, followed by deep injections of nitrate of silver, should be repeated every four days. The strength of the silver solution used in the deep injection should be gradually increased from one per cent to two, three, four, five, and as high as ten per cent.

A most valuable and necessary adjunct is systematic massage of the prostate gland, not oftener than once a week. To be most effective the prostate should be stripped when the bladder is filled with the silver or permanganate solution. Immediate evacuation washes out the secretion expressed from the gland.

Some cases even with this are intractable. When no improvement occurs under the above treatment, all forms of local treatment should be discontinued, and tonics, of which the best are nitromuriatic acid and strychnine, should be administered.

THE ABSORPTION OF MERCURIAL OINTMENTS.

FEDTSCHENKO (*Wiener klinische Therapeutische Wochenschrift*, April 10, 1904) made a series of one hundred and fifty careful observations to determine the amount of mercury absorbed when administered by inunctions, under various conditions; 4.6 to 6.5 grammes of ointments composed of different bases and containing 33 1/3 per cent of mercury were rubbed into the skin for thirty minutes.

Of common blue ointment (old) an average of 29 per cent of mercury was absorbed; of lanolin ointment, 24 per cent; of mercurial soap, 27 per cent; of mollinum, 33 per cent; of resorcin, 49 per cent; and of vasogen, 44 per cent.

Old mercurial ointment is absorbed more rapidly than the freshly prepared. Ab-

sorption is greater in some areas than in others. More mercury is taken up by the skin of the leg than by that of the thigh. Increasing the duration of treatment to forty-five or sixty minutes increased the absorption 8 to 12 per cent, but proved too irritating to the skin. By decreasing the duration of treatment to fifteen minutes, only one-half as much mercury was taken up.

Repeated utilization of the same area increases its power of absorption, provided suitable warm baths are given. Frequent bathing and warmth increase the activity of the skin. Vigorous massage proved more effective than simple friction.

TUBERCULOUS ARTHRITIS IN CHILDREN—TREATMENT.

HOFFA (quoted in the *Post-Graduate*, June, 1904) thus summarizes the treatment of tuberculous arthritis in children:

1. The treatment of this affection should be conservative; three-fourths of the cases thus treated recover.

2. If treatment is begun early, some cases recover without loss of function; usually, however, ankylosis develops.

3. Ankylosis is often unavoidable, in cases in which destruction of the joint has occurred. Marked contraction of the joint is always a result of inadequate treatment, particularly of deficient fixation, or fixation of insufficient duration.

4. Complete recovery from this disease under conservative treatment usually takes place within two or three years.

5. Whenever possible the child should be sent to the seashore for an entire year.

6. Soap inunctions (*sapo kalinus* Duverney) are an excellent adjuvant. Medically cod-liver oil, arsenic, and potassium iodide are worthy of trial.

7. The best local treatment consists of a combination of immobilization, permanent extension, and the injection of 10 cubic centimeters of 10-per-cent iodoform-glycerin emulsion into the parenchyma of the joint or into the abscess cavity after evacuation if abscess be present.

8. During the florid stage of the disease—*i.e.*, as long as there is pain or fever—the patient must be kept at rest.

9. In the absence of pain the ambulatory method of treatment is indicated.

10. The ambulatory treatment is carried

out by means of a suitable plaster-of-Paris bandage, or preferably in a portable apparatus.

11. Before applying the immobilization and extension bandages, existing contractures must be corrected.

12. The correction of deformities is accomplished slowly by means of weight extension or portable apparatus, or more rapidly under narcosis. Brisk total corrective procedures should never be employed; in severe cases correction of deformity should be performed at interrupted sittings ("Etappen"), followed each time by immobilization with plaster bandages.

13. The mere presence of suppuration is no indication for immediate operation; nor is it a contraindication to the ambulatory method of treatment.

14. The existing abscesses are treated by puncture, evacuation, and iodoform injections, every second or third week. The injection should not be repeated until all the disturbances (rise of temperature and pain) arising from the previous injection have completely disappeared. Injections are continued until exploratory puncture demonstrates complete disappearance of the abscess.

15. Incision of cold abscesses is deprecated owing to the danger of fistula formation and septic infection. Wide incision should be made only in those cases in which (1) the abscess continues to give pain and fever notwithstanding repeated punctures and iodoform injections; (2) perforation threatens; or (3) the original diseased focus has healed.

16. The conservative treatment may be employed in the presence of aseptic fistulæ, as the latter frequently heal spontaneously.

17. In some forms of tuberculous joints Bier's method of passive hyperemia is good treatment.

18. The contractures which remain after healing of the tubercular lesion may be remedied by orthopedic mechanical measures, or by operation, such as osteotomy, resection, etc.

19. If the tubercular lesion fails to heal under careful conservative treatment; if new abscesses continue to develop, and perhaps threaten life; if ichorous fistulæ exist or large sequestræ form; finally, if the tuberculosis runs a very rapid and grave course, it is advisable to resort to more radical operative procedures.

20. The operative treatment should be

as conservative as possible; instead of typical, atypical resections or arthrectomies should be employed. The epiphyseal lines particularly in children should be preserved.

21. With rigid asepsis the prognosis of resection has improved greatly.

22. After resection of a tuberculous joint, ankylosis in good position should be sought.

23. After resection or arthrectomy, contracture of the joints should be prevented by means of plaster-of-Paris bandages and portable apparatus.

24. Amputation should be considered only in cases in which there is pronounced destruction of the entire joint and simultaneous presence of tuberculosis or amyloid degeneration of internal organs.

EXTRA-UTERINE PREGNANCY.

RUNGE (*Archiv für Gynecologie*, Bd. lxx, Heft 3) has observed 233 cases of extra-uterine pregnancy at the Berlin Charity Hospital: 73 were tubal abortions, 47 tubal ruptures, 5 intact pregnancies, and 108 hematoceles. In 39 cases the rupture was into the free abdominal cavity, in 8 into the ligamentum latum.

The average age of the patients was thirty years and nine months. There were 33 primiparæ and 195 multiparæ. This accident generally occurred in the third or fourth pregnancies. Four years was the average time between the last birth and the appearance of the extra-uterine pregnancy. Sterility of greater or less duration, following the last confinement, was noted in 66 per cent of all the women who had borne children.

In 24 cases systematic disturbances were noted during the puerperium after one or more labors; in 56 of these there was antecedent or coexistent gonorrhea. The chief etiological factors were pathological conditions of labor or the puerperium, and chronic gonorrhea; both produce tubal disease and pelvic peritonitis, the latter leading to distortion of the tube as well as to displacements. Uterine hemorrhages were noted in 192 instances, occurring, on an average, the fortieth day after the last menstruation. The hemorrhages were due to the separation of the uterine decidua caused by the uterine contractions. Pain was observed in nearly all the cases. The decidua uterina was cast off as one mass

in 9 cases. In the majority of cases the uterus was enlarged.

The introduction of sounds, curettage, and exploratory puncture through the vagina for diagnostic purposes should be condemned, except in cases of suspected hematocele. Interruption of pregnancy occurs chiefly by abortion in the first month, and rupture in the second month.

In 17 cases in which the fetus was found during the operation, it was contained in the tube five times, and in the abdominal cavity twelve times. The fetus varied in length from 3 to 4.5 centimeters.

Laparotomy was performed in 88 cases. Changes in the adnexa on the same side were noted in 12 and on the opposite side in 31 cases. Intact tubal pregnancy always requires laparotomy. Morphine injections into the sac and electro-puncture are never of use. Operative interference after rupture or abortion is indicated (1) when the woman's life is in danger; (2) when the tumor increases visibly in size, or its absorption is arrested; (3) when there is gradual deterioration of the general health; or (4) when there is prolonged elevation of temperature. Pregnancies in the later months should be operated upon immediately.

The most profound anemia does not constitute a contraindication to operation. When the fetus is large, careful removal of the membranes and placenta is imperative, and the peritoneal cavity should be emptied of blood clots.

Laparotomy is the best operative procedure in cases of abortion and rupture. Of the 73 cases of tubal abortion, 36 recovered after conservative treatment, 36 after operation, and one died after operation. Of the 47 cases of tubal rupture, 5 recovered under expectant treatment and 31 after operation, while 8 died of anemia and 3 of sepsis.

Hematoceles should be treated expectantly, except in cases of suppuration of the blood clot, persistence of general symptoms, deficient absorption, or severe pressure symptoms. They should be removed preferably through the posterior vaginal vault; through the abdominal cavity only when the hematocele is very large, or cannot be reached easily through the vagina.

Of the 108 cases of hematocele, 37 were operated upon. One patient died after conservative treatment, one after vaginal incision, and one after laparotomy.

*POPLITEAL ANEURISM TREATED BY
MATAS'S METHOD.*

Matas's method of operating on aneurisms, as described by BINNIE (*Journal of the American Medical Association*, June 25, 1904), combines the advantages of ligation and excision, while at the same time it is easier, safer, and may be more conservative. It is suitable both to the fusiform and sacculated types of the disease. After applying a constrictor above the site of the disease, if in a limb, or temporarily ligating the proximal and distal trunks, if the carotid is the vessel at fault, the operator cuts into the sac, thoroughly removes the contained clots, rubs the serosa with gauze, and proceeds to insert sutures. The sutures, preferably catgut, are first applied to the openings of all vessels entering or leaving the sac; then the deeper portions of the sac are closed by two rows of continuous Lembert sutures. The elastic constrictor is now removed, and if any blood escapes, one or two points of suture are inserted to control this. The next step consists in folding the excess of sac wall on itself, and in so doing inverting the edges of the skin wound.

The operation, performed as described, has been very successful, and in some cases of sacculated aneurism the circulation may be reestablished through the repaired vessel. Binnie has operated on a case of sacculated aneurism of the popliteal artery by this method. Efficient circulation was promptly reestablished, but the posterior tibial pulse could no longer be felt. The operation, in the case of popliteal aneurism at least, is one of ease, apparent safety, and efficiency.

EXTENSIVE SUBCUTANEOUS LACERATION OF THE ABDOMINAL MUSCLES.

That a rupture of all of the abdominal muscles may occur, with insignificant injury to the skin, has been shown by a case recorded by EISENDRATH (*Annals of Surgery*, June, 1904) in which recovery occurred.

A laborer, aged fifty years, was rolled between the sides of two street-cars passing in opposite directions, causing a traumatic hernia through the triangle of Petit. Sixteen hours after the injury there was evidence of peritoneal irritation, as shown by increased pulse-rate, tympanites, and tenderness.

Upon cutting through the skin it was found that from the quadratus lumborum posteriorly, to the middle of Poupart's ligament in front, all the structures which were normally attached to the crest of the ilium and outer half of Poupart's ligament had been torn from their attachments. The lower edges of the muscles were also irregularly torn and contused. The general peritoneal cavity was found partially walled off by adhesions between the ascending colon (which had been displaced inward) and the anterior abdominal wall. In the iliac fossa were many loose pieces of omentum. The ascending colon was contused and dilated, but there were no other visceral injuries.

By drawing the muscles down to the tough aponeurotic gluteal fascia it was possible to close the outer half of the defect completely with fourteen kangaroo tendon mattress sutures. In front of the anterior superior iliac spine the torn muscles were sutured *en masse* to Poupart's ligament in a manner similar to the formation of the posterior wall of the inguinal canal in the Bassini operation. Examination of the patient nine months after the injury shows no hernia.

*FRACTURE OF THE NECK OF THE
FEMUR.*

In 1902 Ruth reported 42 cases of fracture of the neck of the femur, in 88 per cent of which he secured good serviceable union. If there are excluded four cases in which treatment was abandoned within four weeks, death occurred from an intercurrent malady, or in which the injury is too recent to report, the percentage of good serviceable limbs is one hundred.

There was no failure to secure serviceable limbs in any case under seventy years of age, and no failure to secure union under eighty years of age.

MOORE (*American Journal of Orthopedic Surgery*, August, 1904) describes the method by which these cases were treated.

The patient is anesthetized. The thigh is flexed upon the body and lifted up so as to carry the tendon of the psoas and iliacus muscles away from the seat of the fracture, as it has a tendency to crowd the soft tissues between the fragments. While keeping up the extension of the limb, it is brought down to the natural position, and

a pull of 15 to 25 pounds applied by means of the usual long side adhesive straps and a pulley at the foot of the bed. Another pull of 10 to 15 pounds is applied to the inner side of the upper end of the thigh by weight and pulley. The inner and under side of the thigh is protected by a binder's board or felt splint, so that the pressure will be evenly distributed. This side pull is the special feature of the treatment. It lifts the upper end of the long fragment upward and outward into place, and by making the capsular ligament taut forces the short fragment into position. The short fragment, being attached only by the ligamentum teres at its apex, cannot get out of place so long as the capsule hugs it closely like a coat sleeve. The direction of this pull is upward and outward, so that the resultant of the two pulls is in the long axis of the neck of the femur. The elevation of the side pulley must be such as to overcome the outward rotation. The rotation can be changed at will by raising or lowering the side pulley. A strip of gauze four inches wide and several layers thick is a very convenient material of which to make the loop around the thigh; on account of its elasticity it adjusts itself to the inner side of the thigh and equalizes the pressure. It can be fastened to the bandage which holds the felt splint to the thigh by a few stitches, to prevent its rolling up or making pressure on the perineum. The amount of weight to be applied is governed by the amount required to overcome the deformity in each case. The bed is prepared by placing board slats underneath a hair mattress to prevent sagging. The foot of the bed is elevated 8 or 10 inches, and the side corresponding to the injured hip is elevated about four inches. An ordinary iron or brass bed will accommodate itself to these elevations, so that the patient's body will act as a counter-extension against both weights.

After a few days the patient may be assisted into a sitting position every day, without fear of disturbing the fracture, as the weights adjust themselves over the pulleys. The weights should be removed every three or four days, and the knee flexed, to prevent stiffening.

The writer reports three cases treated in this manner. The first patient was a frail woman aged seventy-eight years. There was two and one-half inches of shortening at the end of three days. Treatment

was then instituted, and at the end of seven weeks bony union without shortening was secured. The second case was a very fat woman, sixty-six years of age. Bony union with one-half inch shortening was obtained. She was walking about the house at the end of three months. The third patient was a well preserved woman of seventy-nine years, who did not come under observation until seven weeks after the accident. At that time there was crepitus and one inch shortening. Longitudinal and lateral extension were applied. Within one week shortening had been overcome, and at the end of six weeks there was every evidence of bony union without shortening.

TETANUS TREATED BY SPINAL ANESTHESIA.

MURPHY (*Journal of the American Medical Association*, Aug. 13, 1904) reports a case of tetanus treated successfully by aspiration of the cerebrospinal fluid and injection of morphine-eucaine and salt solution. The patient was a boy aged ten years, who developed trismus six days after cutting his foot. Every three to five minutes on the following day there was contraction of the muscles of the back with pronounced opisthotonos.

The wound was curetted, cauterized with carbolic acid, and packed with iodoform gauze. Three full doses of anti-tetanic serum were administered without effect. Two days later a lumbar puncture was made and 16 cubic centimeters of cloudy cerebrospinal fluid withdrawn. Without withdrawing the needle, 3 cubic centimeters of the following solution was injected into the subarachnoid space:

℞ B. eucaine, gr. jss;
Morphin. sulphatis, gr. 1/3;
Sodii chloridi, gr. iij;
Aq. destil., ʒiijss.

This had been sterilized by boiling. Aspiration and injection were employed four times during the first four days and twice during the following four days.

The patient slept several hours immediately following each injection, and the spasms became less frequent and less severe.

The final aspiration and injection were made on the tenth day. After this there was no more spasm; his condition improved, the trismus gradually subsided,

and he was discharged cured twenty-eight days after the receipt of the injury.

The injections immediately relaxed the spinal muscles, and they remained relaxed for considerable periods of time, allowing the patient to sleep and rest. There was no sweating, headache, nor collapse, so frequently noted after injections of cocaine for spinal analgesia. The proportion of eucaine in the solution may be increased so that the patient receives $1/6$ or even $1/3$ of a grain with each injection, and the aspirations and injections may be repeated with greater frequency. There seemed to be no ill effect from the withdrawal of the fluid, and after the third day it showed no polynuclear leucocytes.

VOLVULUS OF THE STOMACH.

Cases of volvulus of the stomach have been reported by Berg, Weisinger, Dujon, and Pendl. BORCHARDT (*Archiv für klinische Chirurgie*, Band 74, Heft 2) reports a fifth case in which he failed to make the diagnosis, even at operation, and regarded the case as one of aortic aneurism with obliteration of the gastric vessels, causing dilatation of the stomach and symptoms of ileus. As the result of a slight laceration of the spleen during operation, such profuse, uncontrollable hemorrhage occurred that the spleen had to be extirpated. A diagnosis of gastric volvulus was made post mortem. The five cases reported permit the formation of a fairly clear anatomical and clinical picture of volvulus of the stomach.

At the time the volvulus occurs that portion of the fundus of the stomach lying in the hollow of the diaphragm descends along the posterior wall of the abdominal cavity, while the greater curvature of the stomach ascends along the anterior wall of the abdomen, until the stomach has rotated through an arc of 180 degrees. In complete volvulus the posterior wall of the stomach is in apposition with the anterior wall of the abdomen; the pylorus runs obliquely upward over the cardia. Both the pylorus and the cardia are occluded. Secondary circulatory disturbances are caused which, in turn, lead to disturbances in nutrition, and finally gangrene. Blood pours out from the walls of the stomach and collects in the abdomen and bursa omentalis. The colon and spleen participate in the altered anatomical relations.

The colon may ascend with the greater curvature and occupy a position above the stomach (supracolic volvulus), or by a maximal stretching of the gastrocolic ligament the volvulus may take place in the bursa omentalis, and the colon retain its normal position below the stomach (infracolic volvulus). The spleen is dragged backward and occupies a position at the deepest portion of the bursa omentalis. Marked secondary circulatory disturbances occur in the spleen.

Gastroptosis or general enteroptosis probably favors the occurrence of volvulus of the stomach.

In a typical case, a patient previously in good health, as a result of traumatism or an error in diet, or even without apparent cause, is seized suddenly with symptoms of collapse, pain in the abdomen, vomiting, and constipation which becomes absolute. As the cardiac orifice becomes occluded the vomiting soon ceases, but persistent retching ensues. Localized meteorism develops in the epigastrium and left hypochondrium. The area of meteorism steadily increases in size and becomes exceedingly tympanitic and tender. Dulness may be obtained in the flanks, if there has been an outpouring of blood into the free abdominal cavity.

Volvulus of the stomach appears to run a less acute course than other forms of internal strangulation. A fatal termination from gangrene, peritonitis, or rupture of the stomach may not occur for many days.

A differential diagnosis must be made from hemorrhagic pancreatitis, perforation, peritonitis, and the various forms of strangulation of the intestines, and of mesenteric obstruction of the duodenum.

In a case presenting symptoms of ileus, the following may be regarded as fairly pathognomonic of volvulus of the stomach: Gastric meteorism of sudden onset; resistance or absolute obstruction at the cardia, as shown by futile attempts at passing the stomach tube; and persistent retching unaccompanied by vomiting.

After opening the abdomen, the diagnosis is confirmed on finding a greatly dilated stomach, bluish-red in color, covered by a thin membrane, which in two cases was mistaken for adhesions, but which consists of either the omentum or gastrocolic ligament. As a result of the drag on the gastrosplenic ligament, the

spleen will be found behind the stomach on the posterior wall of the omental bursa. The diagnosis is further confirmed in the cases of infracolic volvulus by finding the transverse colon above the stomach. Gentle downward traction on the colon will restore the stomach to its normal position. Three of the cases recovered after this procedure. In the supracolic cases the stomach can be restored to its normal position by grasping the lower right border of the stomach with the left hand, and carefully pushing it upward, along the posterior wall of the abdomen, until normal relations are reestablished. As a rule it will be necessary to empty the stomach by aspiration or incision, before attempting its reduction. A recurrence of the volvulus might be prevented by suturing the fundus of the stomach to the posterior wall of the abdomen, or to the diaphragm. This precaution may not be necessary, as one case of simple reduction has not had a recurrence in the eight years which have elapsed since operation.

CARDIOLYSIS FOR CHRONIC ADHESIVE MEDIASTINOPERICARDITIS.

In 1902 Brauer suggested resection of the ribs over the cardiac area in cases of chronic adhesive mediastinopericarditis, for the purpose of lessening the strain upon the heart. Petersen and Simon have reported three cases with satisfactory results. VON BECK (*Archiv für klinische Chirurgie*, Bd. 73, Heft 4) has performed cardiolysis in three cases. In one retraction of the thoracic wall was extensive during systole; in another only the region over the apex was affected; while in the third retraction of the chest wall was barely perceptible. A diastolic impulse over the heart was noted in each case. There were present left-sided pleurisy, cyanosis, irregular heart action, congestion of the liver, ascites and edema in all three, and albuminuria in two.

Resection of the sternum is not necessary for the relief of this condition. After turning up a U-shaped flap, with its base on a level with the third rib, and its free margin extending downward along the left border of the sternum, then outward along the sixth rib, and finally upward along the axillary line, the third, fourth, fifth, and sixth ribs are resected from the border of the sternum outward to the anterior

axillary line, and injury to the pleura then can be avoided with certainty by careful extirpation of the intercostal musculature.

All three of the writer's cases of mediastinopericarditis were secondary to left-sided tubercular empyema, and one of them required an extensive resection of the chest wall as a secondary operation to cure the empyema. These patients recovered with restoration of cardiac compensation. One boy, ten years of age, was operated upon two years ago, and is now able to participate in the active amusements of his companions.

SYPHILITIC ULCER OF THE UMBILICUS IN THE NEW-BORN.

HUTINEL (quoted in the *Journal of Cutaneous Diseases and Syphilis*, June, 1904) states that non-specific infections of the umbilicus in the new-born are more common than the syphilitic lesion. When seen at the beginning the simple infections would never be mistaken for the gummatous ulceration in the typical case, but there are times when it is wise to wait for a confirmation.

The presence of this gummatous ulcer cannot be considered of more value than the majority of other signs of inherited syphilis, but it does constitute a new sign and should be included with the other signs, its chief importance being due to its early appearance.

At first the ulcer of the umbilicus has nothing characteristic in its appearance. The redness, which appears early, resembles the zone around a furuncle; next the swelling, and the skin becomes shiny and sometimes desquamates. Inflammation of the lymphatics or dilatation of the subcutaneous veins has never been noted.

The swelling is neither painful nor tender, feels firm to the touch, but does not pit on pressure. Often after the redness and swelling have disappeared an actual depression is left in the skin.

There is no disturbance of the general condition, no acceleration of pulse, nor rise of temperature.

In a new-born of eight or twenty days, immediately after the falling of the cord the umbilicus swells, becomes prominent, with a bright-red zone about it; the redness becomes darker and extends to a diameter of 2 to 4 centimeters, this redness standing out well against the paler color

of the abdominal wall. The appearance is distinctly inflammatory and resembles an erysipelas, except that the redness does not spread, has not a sharply defined border, is apyretic, and does not affect the general condition of the baby.

There is no tendency to abscess formation. The mass is firm, indolent, and feels like a lardaceous infiltration which shades off gradually into the healthy tissue. A peritonitis caused by this lesion has never been observed.

In twelve or fifteen days the process ceases to spread, the swelling goes down, the redness fades, but an ulceration remains—i.e., a fistulous opening into which a probe will pass to quite a depth. The ulceration resists local treatment for a long time, so that not infrequently other manifestations of syphilis appear before this lesion has healed.

In hospitals these babies frequently die, and a gummatous ulceration of the navel is found locally, and specific lesions in the bones, spleen, liver, kidneys, etc., verify the diagnosis.

NARCYL.

Narcyl, or the chlorhydrate of ethylnarcaine, is readily soluble in water, alcohol, and chloroform, and only slightly soluble in ether. It fulfils all the requirements in which opium preparations are indicated, without possessing any of their disadvantages. In therapeutic doses NOË (*Archives générales de Médecine*, 1904, No. 8) states that narcyl influences neither heat nor respiration, differing therefore very markedly from morphine or its derivatives. It is infinitely less dangerous and can be prescribed in larger doses than morphine. It does not interfere with digestion, nor with intestinal activity, and it does not cause nausea or vomiting. Having no action on the renal epithelium or vesical mucosa, it does not influence urinary secretion. It diminishes reflex excitability, and is especially serviceable in quieting reflex coughs. Its marked analgesic powers make it particularly useful in all painful affections. It does not stupefy the nerve centers, and unlike morphine it does not provoke a state of excitation and sentiment of euphoria, hence there is no danger of the narcyl habit being contracted. Narcylomania has never been ob-

served. It is most useful in cases of insomnia due to pain or nervous excitement; in convulsions or painful colics; in neuralgia, neuritis, dysmenorrhea, migraine, visceral crises, etc. It is well borne by children. The dose for an adult is from one to two grains. Hypodermically the dose is one-third of a grain.

SALICYLARSENATE OF MERCURY.

Salicylarsenate of mercury is a new soluble salt, in which mercury and arsenic are found in a "latent" state, and, being less toxic than the more common preparations, can be administered together in relatively large doses. COIGNET (*Lyon Médicale*, June 5, 1904) has shown this by experiments on animals and by over 800 injections in syphilitics at all stages of the disease. In practice a dose of .12 gramme, corresponding to .046 gramme of mercury, was as much as was needed, and usually half of this quantity sufficed. The latter amount was easily dissolved in 2 cubic centimeters of water and could be sterilized by boiling without injury to the salt. The injections were not painful. In this new salt the specific effects of mercury and the reconstructive properties of arsenic are combined.

EXPERIMENTAL RENAL DECAPSULATION.

Following the experimental decapsulation of normal and diseased kidneys in rabbits GIFFORD (*Boston Medical and Surgical Journal*, July 14, 1904) comes to the following conclusions:

1. In all the cases of two days and under and in the controls the entire thickness of the capsule had been removed over two-thirds of the surface by the operation of decapsulation.
2. There is a certain amount of intracapsular tension in undecapsulated kidneys, normal or with nephritis, as shown on removal of capsule.
3. There is an immediate increase in the size of decapsulated kidneys, persisting up to one month at least; afterward, a decrease to approximately normal size, complete at the end of six months.
4. There is congestion, moderate in degree, most marked in the intertubular

blood-vessels in the cortex, lasting three to five days after the operation.

5. No histological change in the renal epithelium follows decapsulation of the kidneys.

6. A new capsule, very vascular at first, two to four times the thickness of the old, is well marked at the end of eight days. At the end of six months it returns to approximately the normal thickness and vascularity. The new capsule arises chiefly from the connective tissue cells of the intertubular connective tissue, but in part from the retroperitoneal connective tissue which is present in the new bed of the kidney.

7. No new vessels are formed which anastomose with those of the kidney.

8. The increase in size is due primarily to the increase in blood-supply, possibly resulting from the removal of the capsule.

TUBERCULOSIS OF THE EPIDIDYMIS— OPERATIVE TREATMENT.

In an attempt to ascertain the best method of treating tuberculosis of the epididymis, BOGOLJUBOFF (*Archiv für klinische Chirurgie*, Bd. 74, Heft 2, 1904) has collected statistics of 178 cases. Of 39 seen at periods varying from three to twelve years after total incision of the epididymis, recurrence in the testicle was found in only 5 cases.

Of 51 in which partial resection of the epididymis was performed, 14 are known to have been free from recurrence from one to twelve years after operation. Partial resection of the epididymis seems to be followed by a somewhat larger percentage of recurrence of the disease than does total resection.

In 22 cases extirpation of the epididymis was combined with excision of diseased foci in the testicle itself. Of this number 15 are known to have been cured, while in 3 the disease recurred in the testicle.

In the majority of instances, after resection of the epididymis, the testicle retains its normal appearance on macroscopical examination, as shown by 19 cases observed for periods of three to twelve years after operation.

In 13 per cent of the 178 cases operated upon, tuberculosis developed in the oppo-

site testicle on an average of fourteen months following the operation.

Of the 199 non-operative cases of tuberculosis of the epididymis, collected by Recus, Wiessler, and Salleron, the affection was bilateral in 30 per cent. According to Haas, the average interval between the involvement of one testicle and the appearance of the disease in the opposite testicle is four and a half months.

In 42 of the writer's cases in which there was a coincident tuberculosis of the prostate and seminal vesicles, improvement or cure of the disease in the latter organs took place in 45 per cent after resection of the epididymis. In 16 cases in which there were complications of the urinary apparatus, 8 cases were improved or cured, after operation on the epididymis. Of 32 cases complicated by tuberculosis of the lungs, improvement took place in the pulmonary process in 8 cases. In 34 cases which were observed from two to twelve years after excision of the epididymis, tuberculosis could not be demonstrated anywhere in the system. Sexual power was retained in all cases, whether the operation was unilateral or bilateral, except four, in which sexual weakness occurred from other causes. In 10 of the 12 cases operated upon by the writer, the vas deferens was anastomosed to the testis, or to the unexcised portion of the epididymis. The results in these 10 cases were about the same as those in which anastomosis was not performed.

Subsequent involvement of the remaining testis was noted by Haas in 26.7 per cent, by Bardenhauer in 73.7 per cent, and by Woskressensky in 34 per cent of cases in which castration had been performed. Following castration Woskressensky has found that an average of twenty-one to twenty-two months elapses before the affection appears in the remaining testis.

Of the 205 cases of castration collected by Woskressensky, the seminal vesicles and prostate were involved in 56, and of these improvement or cure took place after operation in 64 per cent.

In only a few instances in which there was involvement of the urinary apparatus were Haas and Woskressensky able to observe any improvement after castration. Of the 205 cases of castration, pulmonary involvement was noted in 31, 13 of which were improved or cured after operation.

Of Berger's 43 cases of castration, 24 were cured and 13 died. Haas reported 44.6 per cent cures after unilateral and 56.7 per cent after bilateral castration. Simon's statistics show 66.3 per cent cured after castration. Woskressensky gives 42.5 per cent cures and 20.3 per cent mortality after unilateral castration, and 61.8 per cent cures and 25.4 per cent mortality after bilateral castration.

After an analysis of these statistics it appears that resection of the epididymis for tuberculosis for the cases in which it is applicable can be considered fully as radical an operation as castration, and deserves more extensive employment in the therapy of this affection.

STRANGULATION BY TORSION OF A FULLY DESCENDED TESTIS.

EDINGTON (*Lancet*, June 25, 1904) reports a case of strangulation of the fully descended testis from torsion of a pediculated mesorchium in a baby aged seven months.

The points of interest in connection with this case were the extreme youth of the patient, the descent of the testicle having been complete; no history of traumatism; absence of constitutional symptoms; local signs were not diagnostic; and the presence of "reversion" with pediculated mesorchium. Orchidectomy was performed and the patient recovered. The testicle had made a complete twist from within outward so that the body of the testis lay in its proper position anterior to the epididymis.

DELIVERY OF TWINS WITH AN INTERVAL OF SEVENTEEN DAYS.

PAULIN (quoted in the *Interstate Medical Journal*, July, 1904) reports the case of a married woman of twenty-five who was delivered of a living child, and soon thereafter of a normal placenta, during the eighth month of her second pregnancy. A second fetus was distinctly palpable, its heart sounds being clear and loud. Some soft tissue could be felt in the vagina, and adjoining it on the left a cervix was found, comparatively hard and firm, its external orifice being partially closed. The examining finger could not pass through the cervical canal.

Labor pains stopped completely, and the woman went to sleep. The next day no uterine contractions could be observed. There were no lochia, nor any signs of the secretion of milk. Nine days later the patient left the bed.

Sixteen days after the delivery of the first child the membranes of the other fetus ruptured suddenly, and the next morning another living child was born. The placenta was shortly afterward expelled. Like the first, the second puerperium took an absolutely normal course. This time the breasts soon became engorged, and milk was secreted in sufficient quantities for both children. An examination a few weeks later showed that the uterine cavity was divided into two sections by a broad septum, the presence of which was ascertained with the uterine sound. On palpation the uterus did not show any anomalies.

UMBILICAL CORD HERNIA.

The frequency with which hernia funiculi umbilicalis occurs is given by Lindfors as 1 in 5184 births occurring at the Munich Maternity Hospital between the years 1862 and 1881. Block records 1 in 5000 births at the Berlin Charité, and Vienne did not meet with a single instance among 3043 births observed at the Paris Charité. Rogier states that it occurs in 2.7 per cent of all newly-born infants.

Hernia of the umbilical cord is frequently accompanied by other malformations—*anencephalus*, spinal curvatures, *spina bifida*, clubfoot, persistent cloaca, *atresia ani*, multiple intestinal *atresia*, and *exstrophy* of the bladder have all been recorded. The hernia varies in size, and may prove an obstruction to delivery. Its coverings consist of three layers—*amnion*, *Wharton's jelly*, and *peritoneum*. Calbet reports a case in which no sac was present, the stomach and entire intestinal tract, except the rectum and part of the sigmoid, lying outside the body walls "bathed in the amniotic fluid." The sac may be ruptured during delivery. The contents vary. A few loops of small intestine alone may be present, or the *cæcum* as well as most of the large intestine may be in the sac. The stomach, pancreas, spleen, liver, and kidneys all have been found outside the abdominal cavity. Cases in which the heart and part of one lung

are prolapsed are classified as true eventration.

The umbilical cord is inserted at the apex of the mass; when the liver is contained in the sac the cord usually is found attached on the left side, rarely on the right.

The embryonic period at which this malformation occurs is about the tenth week.

According to WOLLSTEIN (*Archives of Pediatrics*, June, 1904) the radical operation for the cure of this condition has become general, and is indicated in every instance where prematurity or extensive malformations do not interfere with the child's viability. Cures have resulted from operations performed in the first hour after birth.

OVARIAN IMPLANTATION—INFLUENCE ON MENSTRUATION.

DUDLEY (*American Medicine*, July 9, 1904) reports eight cases in which he has implanted ovarian tissue in the uterus. One patient died. The others all menstruated after the implantation, but not regularly. In none was there any marked change in the physical condition, though all the remainder of the ovarian tissue was removed; in none was there the stormy period and subsequent taking on of fat, usually seen after artificial menopause. In one case, in which unilateral salpingo-oophorectomy had been performed two years previously, the remaining tube was removed and the ovary was placed within a slit made in the fundus of the uterus. The implanted ovary projected into the uterine cavity, was not covered by mucous membrane, and not grasped by the uterine musculature, as contraction of the latter would have extruded the implanted ovary. During the twelve months following the operation the patient menstruated three times. Complete hysterectomy was necessitated by uterine hemorrhage three years later. Histologic examination revealed a merging of the uterine and ovarian tissues, and the presence of a Graafian follicle. Dudley doubts whether a pregnancy, even if it should occur with an ovary thus implanted, would persist to term.

The main things to be hoped for in such an operation are the benefit of the internal secretion of the ovary and the avoidance of the stormy, nervous period induced by an early menopause.

Reviews.

A TEXT-BOOK OF HISTOLOGY. By Frederick R. Bailey, A.M., M.D. Profusely illustrated. New York: William Wood & Co., 1904.

When we consider the excellent textbooks already available it seems reasonable to expect that a new candidate for favor should enter the lists with some distinct claim for recognition. The work before us, it is stated in the preface, is intended for the student of medicine, and, the author informs us, the manuscript has been submitted for careful and critical review to Dr. T. Mitchell Prudden.

The first chapter is devoted to general technique dealing with dissociation, fixation, infiltration, section cutting, staining, etc.; there seems no adequate reason for not including in Chapter I the special staining methods given under Chapters II and III. To one who has worked with Mayer's carminic-acid stains (paracarmine and carmalum) the recommendation of other carmine preparations seems unnecessary. The reviewer has some curiosity to know what a student would do when directed to "stand slides on end in a water-bath twelve to twenty-four hours to evaporate the water" (p. 19). It is a derangement of epitaphs to call the silver impregnations staining methods. Among the special neurological methods the recent Ramon y Cajal technique, or some of its modifications, for demonstrating the intracellular fibers, might have been mentioned. These chapters on technique should be amplified, made accurate, or expunged.

Part II of the work, consisting of one chapter, is devoted to the cell. Part III deals with the tissues, including epithelium, mesothelium, and endothelium, in the first two chapters, and connective tissues in the third chapter. It is feared that students will be confused by dividing lymphocytes into large and small, and making the mononuclear leucocyte a separate variety. The blood is followed by chapters on the muscle and nerve tissues. The circulatory system, lymphatic organs, skeletal system, glands, digestive system, respiratory system, urinary system, reproductive system, skin and its appendages, nervous system, and organs of special sense are each considered in the order named. In the chapter on the circulatory system brief mention is made of the carotid and coccygeal glands.

Many of the illustrations are new, and those copied are credited to the proper source. Some of the chapters are followed by general references for further study. The book is printed on smooth, rather heavily calendered paper, in bold clear type, except the parts on technique and references, which are in small type. The binding is satisfactory. On the whole the book is acceptable, although there are a number of histologies in many respects its superior.

W. M. L. C.

NORMAL HISTOLOGY. By Edward K. Dunham, Ph.B., M.D. Third Edition, Revised and Enlarged. Illustrated. Lea Brothers & Co., New York and Philadelphia, 1904.

In a general way the third edition of this valuable manual possesses a similar arrangement and considers the same subject as those preceding it, except that, unlike the first edition, the present is restricted to normal histology, to which more space is allotted. The volume opens with an introduction in which some general embryologic problems are considered. This is followed by a discussion of the cell, its morphology, and some of its primary functions. Chapters are devoted to the elementary tissues, including epithelium, under which endothelium is described, the connective tissues and tissues of special function. Among the latter are grouped muscle and nervous tissue. Succeeding chapters are devoted to the circulatory system, blood and lymph, digestive organs, liver, urinary organs, respiratory organs, spleen, ductless glands, skin, reproductive organs, central nervous system, and the special senses, in the order given. The volume closes with an excellent summary of a few essentials in histological technique. As a rule the descriptions are concise and accurate, although the statement that the islands of Langerhans are composed of epithelial cells arranged like those of the liver does not appeal to us as entirely commendable. The figures of epithelium from the pelvis of the kidney, ureter, and bladder seem unnecessary duplications, and, to the beginner, might possibly indicate differences not indorsed by the text. As given (p. 312) the Golgi methods had better been omitted.

The illustrations, both original and copied, appeal to the reviewer as being exceptionally good. The reproductions are of a high order, the typography is commendable, the paper especially adapted to the

work, and the binding satisfactory. On the whole, the volume is to be commended as a most trustworthy guide for students of medicine.

W. M. L. C.

DIE WIRKUNGEN VON ARZNEIMITTELN UND GIFTEN AUF DAS AUG. Von Dr. L. Lewin and Dr. H. Guillery. I Band, Berlin, 1905.

This is a book of great interest and value. In it are gathered all the facts pertaining to the action of medicinal agents and toxic substances on the organ of vision, and the disturbances of function which they create through their influence on the nervous system and on metabolism. The literature has been gathered with painstaking care and judiciously analyzed and classified. As a work of reference it must always retain an important position, and should be in the possession of all who are interested in the problems concerned with the physiologic and toxic actions of drugs.

G. E. DE S.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical Sciences. Edited by H. A. Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume IV, December, 1904. Lea Brothers & Company, Philadelphia and New York. Price in paper binding, \$1.50; in cloth, \$2.25.

This volume, like preceding issues in December, deals as its opening article with diseases of the digestive tract and allied organs, the liver, pancreas, and peritoneum, the author being Dr. J. Dutton Steele, of the University of Pennsylvania, who gives an exhaustive résumé of the advances made in the study of diseases of these organs during the past twelve months. This article contains very much that is exceedingly useful to the general practitioner, since these parts of the body usually fall into the hands of the general practitioner rather than the specialist for treatment. The second article, on anesthetics, fractures, dislocations, surgery of the extremities, and orthopedics, is by Dr. John C. Bloodgood, of Johns Hopkins University, who devotes most of his space to the consideration of the diseases of the bones and malignant growths affecting these parts. A very interesting chapter is that on genito-urinary diseases by Dr. Belfield, of Chicago, who is so well known to the profession because of his writings upon this important subject. The section on diseases of the kidney is by Dr. John Rose Bradford, Professor of

Medicine in the University College, London; and the closing article, which covers about one hundred pages, consists in a therapeutic referendum by Dr. Landis, in which he considers, in alphabetical arrangement, most of the important contributions in therapeutics which have been made during the last year.

It is the aim of the editors to see that each contributor writes a personal article in which he not only culls from current literature facts which are of interest, but adds his personal experience and opinions in such a way that the reader keeps abreast of articles in many journals, and in addition has the advantage of a discussion of their real value.

MEDICAL ELECTRICITY. A Practical Handbook for Students and Practitioners. By H. Lewis Jones, M.A., M.D. Fourth Edition. Illustrated. P. Blakiston's Son & Co., Philadelphia, 1904.

Medical Electricity, with all that that term now conveys, including the use of electricity for lighting, for diagnosis, for cautery, and for the treatment of disease, cannot now be satisfactorily considered in books devoted to the employment of drugs or of remedial measures other than drugs. This is well shown by this exhaustive, but nevertheless concise, volume, which has already obtained for itself the enviable position of having passed through four editions. Dr. Jones is the medical officer in charge of the Electrical Department at St. Bartholomew's Hospital, London, and brings to the preparation of his book a large personal experience.

After an opening chapter devoted to historical matters connected with electricity and its use in medicine, he proceeds to a description of "first principles," then describes the induction coil and the various forms of medical batteries and apparatus, next discusses the utilization of electric light mains for medical purposes, and then goes on to consider electricity of high potential or static electricity. From these points he passes on to the use of the electric bath, describes what might be called electrical physiology, and its employment in diagnosis and general therapeutics, and closes his book with chapters devoted to the electrocautery and electromagnet, the Roentgen rays, and with plates, showing the motor points and the cutaneous nerves. As the book is printed

in England, it contains one portion which is not, of course, of any value to an American reader, namely, a list of English towns which have the direct and alternating current. This, however, is in no sense a blemish.

We can most cordially recommend the volume to those who are desirous of obtaining the most recent and complete information upon this important branch of special therapeutics.

A MANUAL OF SERUM DIAGNOSIS. By Dr. O. Rostoski. Authorized Translation by Dr. Charles Bolduan. John Wiley & Sons, New York, 1904.

Some months ago we noticed in the *GAZETTE* a small book upon the Immune Sera by Professor Wasserman, translated by Dr. Bolduan, and spoke in terms of praise of the original text and the manner of its translation. It was also stated that by these means the average reader could put himself in possession of valuable scientific facts in regard to the interesting subject of immunity. We therefore heartily welcome the appearance of this little manual of Serum Diagnosis, the price of which is one dollar. It is an accurate summary of our present knowledge of this matter in the sense that it gives us a clear conception of the underlying principles involved. Probably most of our readers would like to be, but are not as yet, well acquainted with the subject of the protective measures which the body institutes in cases of disease, and with the action of precipitins, agglutinins, etc. The first pages of this little manual make this somewhat difficult subject clear and readily understood, at least as far as workers in these lines can understand them.

MEDICAL LABORATORY METHODS AND TESTS. By Herbert French, M.A., M.D., M.R.C.P. W. T. Keener & Co., Chicago, 1904.

This is a duodecimo volume of 150 pages designed by its author to contain the chemical and microscopical tests which are most useful to medical men. It does not deal with the examination of the patients, but with that of the fluids or substances obtained from them. So far as the text is concerned, we believe that it will prove very useful for the busy practitioner in testing secretions and excretions. The book is marred by the wretched illustrations which are dotted through it. If the text were as poor as

the illustrations, it would be useless. That of the *anchylostoma duodenale*, on page 127, is ludicrously crude. Notwithstanding these blemishes we can cordially commend the text to our readers.

A TEXT-BOOK OF PHYSIOLOGY. By Isaac Ott, A.M., M.D. The F. A. Davis Company, Philadelphia, 1904.

We are told in the preface of this volume that Dr. Ott has prepared it at the request of students that attended his lectures during the past eight years. We are also informed that it has not been his intention to write a treatise but rather an elementary work containing the chief facts of physiology. In a number of instances the average physiologist would consider that it was distinctly incomplete. It contains little that is original, but its statements are accurate. If used in conjunction with Dr. Ott's lectures it will undoubtedly prove useful to his students. That it will be commonly employed by students of physiology in other schools we think is unlikely, since many teachers of physiology regard certain subjects which Dr. Ott touches upon quite lightly as being of importance.

THE PHYSICIAN'S POCKET ACCOUNT BOOK. Published by the Medical Council, Philadelphia, Pa.

This flexibly-bound book of two hundred pages is intended, as its title indicates, to be a cash account for the busy doctor. In the endeavor to get much in little space we fear that the usefulness of the book has been to some extent marred, unless the physician is one who writes a very neat and small hand. At the close of the book are a number of "Don'ts" which, if they were followed by the average country practitioner, would save an immense amount of trouble, and the introductory pages are devoted to additional excellent advice to the physician who may use this publication.

PRACTICAL DIETETICS. With Special Reference to Diet and Disease. By Alida Frances Pattee. Published by the Author, 52 West Thirty-ninth Street, New York. Second Edition. Revised and Enlarged.

This small octavo volume of 300 pages is a most excellent and useful description of the various foods which are of value in the nutrition of the sick. It does not attempt to deal with scientific dietetics, but is chiefly composed of formulæ and

recipes by which dainty and useful articles may be prepared. We cordially commend it both to physicians and nurses who are desirous of obtaining information on these important subjects.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.D.

During the past month an interesting discussion on the feeding of infants took place amongst some of the female practitioners of London. It was opened with a paper on the management of breast-feeding, in which some of the common faults were mentioned. The absence of milk from the mother's breasts during the first three or four days after parturition shows that nature intends the infant to have no food beyond the small amount of colostrum which may be obtained from the breast at this period. But in defiance of nature's indication, mothers insist on feeding their infants during these few days with one food or another under the impression that it must require something more than nature has provided; and the result is troublesome flatulence, for which the infant is dosed with brandy, sal volatile, gripe water, etc. When secretion of milk is established, the infant comes to the breast with a stomach already upset by the few days of artificial feeding, and the result is more flatulence and more dosing. Regular intervals between feeds are to be observed as a general rule, but an intelligent mother may be allowed some latitude and discretion. After the morning bath and dressing it is well to let the infant be quiet for a time before being fed, otherwise there is apt to be some indigestion. A hurried meal is as harmful to a baby as to an adult, so the child should be allowed plenty of time at each suckling, and as the richest milk comes at the end of the suckling provided the breast is thoroughly emptied, the infant should be allowed time to empty the breast.

The quantity of a mother's milk is often deficient, and to some extent the flow may be increased by giving her plenty of milk and gruel, and also by administering extract of malt; the value of beer or stout is less certain. However little milk there

may be the mother should be encouraged to continue suckling the infant so long as the milk continues to agree with it, and the deficiency may be made up by some form of substitute feeding. The occurrence of green motions is by no means uncommon in breast-fed children, and this may be remedied by giving to the mother, not the infant, small doses of fluid magnesia regularly three times a day. The occurrence of menstruation in a nursing woman does not contraindicate the continuance of breast-feeding, if the milk at such times agrees with the infant. The importance of mental repose is a thing to be remembered; the woman in whom the higher faculties are much developed, and who continues to use them during lactation, does not make a successful nurse; it is seldom that a woman can turn out good milk and good ideas at the same time. It might perhaps have been added that to turn out good milk is a more integral part of a mother's duties than to turn out good ideas, a fact which the modern woman seems apt to forget; but this was not mentioned at the meeting. Subsequent speakers referred to the value of percentage feeding where babies have to be fed artificially, and also to the good results which are sometimes to be obtained by feeding quite young infants on undiluted milk, the method advocated and practiced by Budin in Paris.

Perhaps no more significant sign of the awakening of the public conscience to the wrongs of infancy in the matter of feeding could be mentioned than the recent activity of municipal bodies all over London and in the suburbs in the establishment of milk depots, from which parents can obtain reasonably pure milk, modified according to the age of the child. Within the past month at least three municipalities in the London area have taken steps in this matter of infant feeding. The modified milk is supplied at a cheap rate so that parents may be induced to use it. No doubt such a system will have some effect in reducing our infant mortality; but it is an interesting speculation to forecast the influence of state-aided education, clothing, and feeding upon the future of the nation; perchance the student of history, seeing in these movements of to-day the encouragement of the thriftlessness and recklessly improvident mar-

riages of our poorer classes, may think of the "*panes et circenses*," the doles which preceded the decline of the Roman empire. But to the medical man the ignorant waste of infant life which has resulted from improper feeding, especially amongst the poor, cries aloud for some such municipal interference as is now being inaugurated, and if only the system is properly safeguarded from abuse, it seems likely to be of the greatest value to the community.

At a recent meeting of the Balneological Society, an address was given by Dr. Bowen Davies on the treatment of arthritis deformans, the so-called rheumatic gout. He considered that to treat such cases with sodium salicylate or colchicum, and to put them on a low diet with little or no meat or alcohol, as is often done, is to do nothing but harm. The diet he recommended is an unlimited supply of milk, at least a quarter of a pound of fresh butter daily, lightly cooked eggs, and in addition an ordinary liberal and nourishing diet. Drug treatment should consist in the administration of cod-liver oil and malt. A dry, bracing climate, in which the patient should take plenty of exercise, is also part of the regimen. Dr. Davies mentioned incidentally some factors in the causation of this arthritis deformans: he considered that it is much commoner in females than in males, and that it commences in many cases about the time of the menopause. It is certainly related in some way to uterine and ovarian disorders, and in some cases mental shock seems to be responsible for its onset; it is also very noticeable how often some acute disease, particularly influenza, precedes the first appearance of arthritis deformans.

The treatment of ulcerative endocarditis was until recently little more than a palliation of symptoms, and had little if any effect in postponing a fatal ending; but since the introduction of antistreptococcus serum we have at any rate a rational mode of treating the actual *causa malorum*, and its value was shown in two cases which were recently reported by Dr. Newton Pitt at the Royal Medico-Chirurgical Society. In one there were clinical signs of vegetating endocarditis of the mitral valve, and already hemiplegia with aphasia had resulted; in the other

as a sequel of pneumonia a similar acute endocarditis had attacked the tricuspid valve. In both recovery followed the injection of antistreptococcus serum.

At the same meeting Mr. W. Thorburn described the symptoms which are sometimes caused by the presence of a seventh cervical rib. These supernumerary ribs are not very rare; they are usually bilateral, and are commoner in women than in men. They seldom produce symptoms before adult years. In some cases there is some interference with sensation, chiefly on the inner side of the forearm; considerable pain is observed sometimes, and as Dr. Purves Stewart pointed out, this pain may be unilateral, although the extra rib is present on both sides. Motor disturbance is also caused by the pressure on the brachial plexus; the muscles on the radial side of the hand are apt to be paralyzed, while those of the ulnar portion are apt to be spastic. All these symptoms can be relieved by removal of the extra rib.

At the Obstetrical Society Dr. H. R. Spencer opened a discussion on the treatment of cancer of the cervix complicating labor; he mentioned three cases in which the child was delivered naturally and a high amputation of the cervix done during the puerperium. The mothers were alive and free from recurrence of the cancer, eight, eight and a half, and eleven years, respectively, after the operation, and the child was born alive in each case. In three other cases radical treatment was impossible, but the child was born alive in each case—one by Porro's operation with the *serre-naud*, the other two by the natural passages. He did not agree with those who consider these cases hopeless, and who say that the child's interests alone must be considered; he would induce labor by the Champetier de Rives bag if pregnancy were a few weeks short of full term, and then at some time during the puerperium he would do a high amputation of the cervix with the galvanocautery. If natural delivery were impossible he would remove the cervix similarly, and then deliver the child, and if necessary remove the body of the uterus at once. Dr. Wilson considered that as the usual effect of pregnancy is to render the growth of cancer more active it is unwise to defer the radical operation, and if removal of the affected part is possible at

all, he thought that it should be done at once regardless of the stage which pregnancy might have reached when the growth was recognized. Dr. Herman and Dr. Amand Router were in favor of Cæsarian section without removal of the uterus in cases where the growth could be completely removed. If the growth allowed of radical operation Dr. Herman thought that vaginal hysterectomy should be particularly easy just after delivery, when the uterus could be pulled down with great ease owing to the relaxed condition of the vagina.

Two well known members of our profession have passed away during the present month—Mr. Herbert Allingham, the distinguished surgeon, who held the post of Surgeon to the Royal Household, and Dr. Vivian Poore, who as physician to University College Hospital, and professor of medicine in the college, was widely known and as widely respected. The appointment of Mr. Bowlby, of St. Bartholomew's Hospital, to fill the vacant post of surgeon to His Majesty's household has been announced during the past few days.

A SUCCESSFUL REMEDY FOR FACIAL ERYSIPELAS.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Having had occasion to try various agents, internal and external, for the alleviation and cure of facial erysipelas, ichthyol and tincture of iodine have been found most effective. I have employed it and have seen it used in fifteen cases. The results were universally satisfactory.

As soon as a diagnosis of erysipelas is made a calomel purge is given, tincture of chloride of iron in moderate doses ordered every three hours, and ichthyol and tincture of iodine, equal parts, painted well over the diseased area. The local application is made daily, care being taken to go beyond any spreading border. The symptoms usually abate in three to five days. The epidermis of the painted area exfoliates. The temperature seldom becomes high, and delirium occurred only twice.

This remedy is mentioned because it has been tried and acts almost like a specific.

E. S. BREESE, M.D.

DAYTON, OHIO.

—THE— Therapeutic Gazette

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Original Communications.

THE USE OF BISULPHATE OF SODA IN THE TREATMENT OF TYPHOID FEVER—A REPORT OF CASES.¹

BY JOHN EGERTON CANNADAY, M.D.,
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In presenting this paper it is my purpose to give a résumé of the conclusions arrived at and methods adopted in the treatment of eighty-five cases of typhoid fever in which the acid sulphate of soda has been used as a routine intestinal antiseptic, and to outline the other remedial measures used in this series of cases.

¹Read by title before the Virginia Medical Society, Richmond, Oct. 21, 1904.

About a year ago my attention was called to the value of the chemically pure bisulphate of soda as an intestinal antiseptic by a paper written by Dr. H. G. McCormick, of Williamsport, Pennsylvania, in the THERAPEUTIC GAZETTE, who had tried this drug clinically in four or five cases. A short time after I began its use, and liked the results so well that up to the present I have treated eighty-five cases occurring in my service in the Sheltering Arms Hospital at Paint Creek, W. Va.

The treatments directed against typhoid have been many and varied, the long-sought-for ideal of the ages having never yet been found. Patients have been sweated and frozen, purged and constipated, stimulated and depressed. All we can hope to do is to steer the patient

through the mazes of the disease, to help nature to make the best efforts, to avoid complications and sequelæ, which are often more grave in their consequences than the disease *per se*. It can be much prolonged by injudicious treatment. Notwithstanding the fallaciousness of attempting to jugulate the disease, every now and then one will read a story in some so-called medical journal of the wonderful results that have followed the administration of so-and-so's tablet, granule, or pill.

Some combination of nature's methods with the least internal medication must subserve our purposes until the serum treatment that has been of so much promise under the untiring efforts of Chantemesse and others has been brought to the high state of perfection that the diphtheria antitoxin has attained. Other methods than drugs must have their share of attention as well. An atmosphere of quiet and gentleness, a clean, sweet, airy room, a vase, a picture, a flower, a bright, thoughtful nurse, will do vastly more good than overmuch medication with nauseous drugs. Instil patience in the mind of the patient. Try to make the journey through illness and invalidism serene and smooth.

The generality of the infection, its wholesale character, prevents any means of treatment limited to the confines of the intestinal tract from accomplishing more than limited results.

Bisulphate of soda, also known as monosodic sulphate, hydrosodic sulphate, or acid sodium sulphate (NaHSO_4 in contradistinction to Glauber's sodii sulphas or the disodic sulphate, Na_2SO_4), contains two molecules of water of crystallization, and is deliquescent. It crystallizes in long, four-sided prisms, and is decomposed by air, water, or alcohol after a considerable lapse of time. It is a fairly stable compound. It is decomposed into H_2SO_4 and Na_2SO_4 . It is obtained by heating sodium nitrate, NaNO_3 , with H_2SO_4 , or by the action of warm H_2SO_4 on NaCl .

Dr. Weddigen, pathologist and microscopist to the Williamsport Hospital of Pennsylvania, has made, under the direction of Dr. H. G. McCormick, extensive and careful laboratory experiments which prove that sodium bisulphate in a solution of one to fifteen hundred is antiseptic to

typhoid bacilli, while a solution of one to two hundred is germicidal in five minutes to the bacillus typhosus. Further experiments made by Dr. Weddigen show that the solution of bisulphate of soda is a direct chemical antidote to the toxins of the bacillus typhosus. This chemical has been used hypodermically on guinea-pigs in a strength of one per cent without producing any toxic effects.

The bisulphate is used in the strength of seven and one-half grains to the ounce of water, two ounces of this solution being given every three hours. It corresponds in acidity to the hydrochloric acid of the stomach and hence promotes digestion, which is at a very low ebb in this disease, especially if the temperature runs at all high. The solution is not at all nauseous, and patients do not as a rule object to the taste.

In treating typhoid fever we must bear in mind not to deplete the system, not to lower the vital powers, to do nothing calculated to add to the toxins already present in amounts that overtax the eliminative functions. I would especially inveigh against the indiscriminate use of quinine, Dover's powder, and acetanilid; disturbing the patient generally, upsetting the stomach, locking up a lot of toxic excretions, depressing the heart, that organ on whose welfare so much depends during the long and toilsome course of this disease, disorganizing the blood, diminishing oxidation, and decreasing the elimination of toxins. Their routine use is not for a moment worthy of consideration.

Sponge baths of tepid water, alcohol and water, cool water, ice water of varying temperatures, as suited to the needs of the case, have been used. As a means of reducing high temperatures, the ice rub in skilled hands is superior to the bath of Brand and far more agreeable to the patient. In the main the cold sponge as recommended by H. A. Hare rather than the tubbing of Brand has been practiced, the latter causing too much shock. The severe congestion of the internal organs caused by the cold tub is quite enough to produce hemorrhage in a case so predisposed. Tap-water is often cool enough for sponge baths, a great deal of course depending on the idiosyncrasies and temperament of the patient.

In the dietary we have given the

typhoid patients almost any kind of soups, animal or vegetable, that have had the grease and particles of solids removed by skimming and straining, liquid peptone, beef extract, peptonoids, predigested beef, beef and wheat, sweet milk, malted milk, buttermilk, gelatins, cocoa, chocolate, coffee and tea, during the course of the fever. When close supervision and skilled nursing cannot be had I am inclined to believe that a rigidly. liquid dietary, given in specified amounts and at fixed hours, is best. When careful watch can be kept I would allow a more liberal diet, giving as great a variety as possible often and in small amounts; always trying to discover just the right thing for the patient's stomach, and stopping immediately any article that disagrees with the patient. In matters of diet I have tried to pursue a middle line, to be neither "liberal" nor "conservative."

When stimulants have been indicated we have used at times strychnine, in doses small enough and far enough apart to prevent the nervous system from being unduly irritated. The tincture of nuxvomica I have often found to act better, the combined alkaloids acting more harmoniously than the one. Digitalis and adrenalin were used for lowered conditions of blood-pressure.

In most cases in which there was delirium, brandy and whiskey were used in doses varying with the habits and idiosyncrasies of the patient. Hare has conducted an interesting series of experiments which go to prove that the administration of alcohol, at least to a certain extent, increases the bacteriolytic power of the blood.

Morphine has not been used in any case of hemorrhage. One or two pints of a 2- to 10-per-cent of gelatin in warm normal saline solution have been given subcutaneously or by rectum (sterilized by boiling when used in the former manner). Adrenalin administered hypodermically every two or three hours in five-minim doses will do much to constrict bleeding points. Calcium chloride in twenty-grain doses every two or three hours will rapidly increase the coagulability of the blood. In all cases of bleeding from typhoid ulcers the patient has been kept quiet and all nourishment discontinued. It is highly advisable to use the physiological saline

solution subcutaneously in cases where the loss of blood has been considerable. These measures have sufficed to control all cases of hemorrhage occurring in a large series of cases.

Saline purgatives have been given in small doses for constipation regardless of the period of the disease. Colonic lavage with warm normal saline solution has been productive of excellent results in some cases.

In the mountains of West Virginia, where water is scarce and the population dense, where sanitary measures are practically ignored, where the turbid waters of the Great Kanawha and New River, gathering filth in every mile of their course, furnish the sole supply of drinking and using water to the teeming thousands who dwell on their banks, disease is rife, the hand of fever falls heavily on the brow of man, and it burns fiercely in the rugged frame of native and foreigner alike. The type of disease there seen is often peculiarly malignant in its course and frequently prostrates the individual as if by a blow. The facilities for nursing and careful attention are often wanting, and the pestilence goes on its way unchecked.

Some of our cases arrive at the hospital in the first stages of the disease, but the majority later, when it has gotten well under way. Some are quite mild, but as a rule the mild case is treated at home and the bad case sent to the hospital. A few cases are practically hopeless when received; occasionally one has had perforation and the consequent peritonitis.

Prior to entrance some of the cases had the best care and attention that doctor, friends, and family could give. Most have been treated by their physicians with the greatest difficulty, owing to the lack of conveniences, to filthy surroundings, and the unskilled attention of ignorant but well-meaning people—people to whom the first principles of hygiene and sanitation are unknown. Practically none of these cases had the services of a trained nurse. The manner in which many of these cases were transported to the hospital most certainly aggravated the subsequent course of the disease—at times brought, in a sitting posture, forty or fifty miles on crowded local trains, or on a cot, being shaken and jostled about in a

baggage car. On one occasion a man in the second week of the disease was carried past the hospital and walked back, a distance of five miles. Shorter distances were walked by several patients in varying stages of the disease.

The average stay in the hospital was 27.08 days; average day of the disease on entrance, 9.06; average duration of fever, 14.06 days; average period of convalescence, 13.02 days. The diet was considerably but gradually increased as soon as the temperature reached normal. Patients were allowed to sit up in bed from the fifth to the sixth day of normal temperature in most cases, to sit in a chair a day or two after, and to go home about a week from that time.

Complications were rather infrequent. Two cases had facial erysipelas, one of them dying from the meningitis which followed its invasion of the internal ear, while the other made a recovery after having a recurrent attack of erysipelas of the face. Multiple furunculosis was noted in five cases.

One case of phlebitis of the internal saphenous vein was followed by thrombosis of the vessel. Nine had marked intestinal hemorrhage, but none were followed by fatal results. Diarrhea and tympanites were uncommon. The mouths of those in which treatment was begun early in the course of the disease kept in excellent condition with an absence of sordes.

Eight cases had well marked relapses, one colored man having three distinct recurrences of the disease.

Most of the cases were adult males from twenty to thirty years old. The greatest number were blacks and whites native to Virginia and West Virginia, with a sprinkling of foreigners—Italian, German, Slav, Greek, and Macedonian.

In this series of eighty-five cases the percentage of deaths was 8.02. Two of the deaths were directly due to peritonitis from perforation, one from erysipelas as a complication, while the other fatal cases were evidently due to the exhaustion and depression of the vital powers due to the disease. One of the fatal cases was delirious and in a low typhoid state when he entered. Two others were at the end of the second week of the disease when brought to the hospital.

Nosebleed was noticed in fifteen cases. The diazo-reaction was present in sixty per cent of cases examined. Rose spots were not frequently found.

At one time or another I have tried on different series of cases various intestinal antiseptics, including salol and zinc sulphocarbolate, tincture of iodine and carbolic acid, acetozone, and ichthyofom. In one series of cases I avoided all medication save stimulants and laxatives, which have been used freely in all cases when indicated.

Withal the results have been considerably better when intestinal antiseptics have been used, notwithstanding the pertinent question of an eminent friend as to the possibility of a few grains of a mild antiseptic to cleanse a number of feet of dirty intestine.

My conclusions are that the bisulphate of soda is a non-toxic intestinal antiseptic; that it keeps the mouth clean, promotes digestion by its acidity, prevents tympany, and lessens diarrhea.

PERNICIOUS VOMITING OF SEVEN YEARS' DURATION CURED BY SUSPENSION OF THE KIDNEY.

BY GEO. ERETY SHOEMAKER, M.D.,
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At the present day, in nervous patients, one hesitates to attribute important symptoms in one organ to the disorder of another. A striking instance, however, has appeared to be worth recording, in which persistent nausea and vomiting were cured by operations which did not involve the stomach itself, after the failure of rest cure, lavage, and long-continued liquid diet.

The patient was single, aged twenty-eight years, and her early menstrual life had been normal. She had had a vigorous frame and had been accustomed to work, until an attack of typhoid fever seven years before coming under observation. This attack was accompanied by hemorrhages from the bowel and some blood had been vomited. Phlebitis of both lower extremities had followed. From that time she had never been able to eat

¹Read at the meeting of the State Medical Society of Pennsylvania, Pittsburgh, Sept. 29, 1904.

solid food. Nausea and vomiting occurred three or four times a day and gradually became worse, until, as she became weaker, they were induced not only by taking food but by nervous excitement. Near the menstrual periods she vomited much more frequently.

During the seven years which had elapsed she had subsisted entirely upon liquids, which included, for separate, long periods, milk, plain and peptonized, as well as several well known proprietary foods. While this diet enabled her to live, it had no curative effect upon the vomiting.

After two years she was given a rest treatment, at which time she remained five weeks in bed, without definite improvement in the vomiting. Three years still later lavage of the stomach was tried. It was administered fifty-nine times by her physician with no permanent effect. Her uterus was then dilated. This was followed by some temporary benefit.

She had tried a number of physicians and had taken much medicine. The financial resources of herself and family had been exhausted in efforts to secure relief, and when referred to the writer she was thoroughly discouraged. She complained of scanty but not painful menstruation, and of a tight feeling or distress in the lower abdomen, which, to use her words, kept her sick at her stomach the greater part of the time. She was relieved by lying down, but was worse when lying on the right side, as though something were "not long enough" to let her have comfort. Near the menstrual period the abdomen was so sensitive that the jar produced by a person walking across the floor gave her distress. When at stool she felt as though something must go back in place before she could have a free movement. She was very nervous and easily startled; cried easily and often trembled. The chief symptom was the vomiting.

When admitted to the Presbyterian Hospital examination showed the uterus, tubes, and right ovary negative; the left ovary low, tender, adherent, and somewhat enlarged. The appendix region was negative, the left kidney normally placed. The right kidney descended to the level of the umbilicus, was not enlarged, and could easily be replaced. There was no

history of kidney crisis or of gall-stones. Palpation of the stomach region was negative; the tongue clean. As medical measures and diet had failed signally, it was decided to correct the kidney displacement by operation and to remove the left ovary and tube, though a guarded prognosis was given as to the effect upon the vomiting.

The movable right kidney was delivered upon the back and its fatty capsule stripped around to the main vessels. No structural disease was detected. Two sutures of Van Horn's chromicized catgut were woven in loops through the capsule, the direction of the loops being downward. The ends of these sutures were tied to the muscles of the back, after replacing the kidney behind its former bed in the fat. The redundant portions of the fatty capsule had been removed. The wound in the back was closed, except for a gauze drain at the lower angle.

The abdomen was now opened in the median line above the pubis. The appendix was removed and the stump turned in. The organ was long and large, its mucous coat showed chronic catarrh, its superficial vessels were engorged, while it was twisted from old inflammatory contraction of the mesoappendix. As the prolapsed left ovary and tube were firmly adherent to the rectum, as the capsule of the ovary was thick and the organ was twice as large as its fellow, it was removed after ligation of the vessels with catgut. The right tube and ovary were allowed to remain. Abdominal wound closed in layers without drainage.

The patient made an aseptic and uneventful recovery from the combined operations. Gauze was kept in the lower angle of the kidney wound to promote adhesions, and was finally removed on the thirteenth day. The vomiting which had persisted so many years stopped abruptly at the time of operation, and has not since reappeared. She was recently seen, eleven months after the operation. She does home work, including washing and ironing, and weighs 159; the scars are in good shape, and the general condition excellent. The nervous symptoms have greatly improved; the stomach condition is cured. She is able regularly to eat hearty meals without vomiting, including fried onions, sausage, and sauerkraut.

Menstruation is still scanty, and for a few hours at her periods she suffers from nausea.

This case illustrates the necessity of a careful physical examination of all organs in chronic intractable disorder of the stomach. While it is true that operation was done upon the appendix and left ovary at the same time, I attribute the chief influence upon the stomach to the support of the very markedly displaced right kidney. Previous to operation her nausea was always relieved by lying down, but this change of position could not have influenced an *adherent* prolapsed ovary or a contracted mesoappendix, while it did replace the kidney.

One may attribute to the ovary her former distress in defecation. The change in the woman, which is considered marvelous by her friends, cannot be due to the influence upon a neurasthenia produced by three weeks' stay in bed, as six weeks of rest cure, five years before, had entirely failed.

1831 CHESTNUT ST., PHILADELPHIA, PA.

REST AS A CURATIVE AGENT.

BY G. WEHRLE, M.D.,
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I am well aware that the facts about to be reviewed are not new. My reason for presenting this paper is the belief that the therapeutic value of the principle of rest, in the medical management of acute inflammatory and infectious processes, is not sufficiently appreciated. As a life-saving measure it stands first among therapeutic agents.

Let us consider then the effect of rest upon the circulation. By placing the patient in the recumbent position the number of heart-beats is reduced ten per minute. Now the average daily output of energy by the heart is about 400,000 foot pounds. Granting then that an equal amount of force is expended by each cardiac pulsation when the patient is lying down as when he is standing, then we save the heart by simple rest in bed the daily expenditure of 50,000 foot pounds of energy. But there is another reason why decreasing the pulse-rate saves the heart. The faster the heart beats the less time it has for rest; that is, the sum total

of the periods of rest or diastole is much greater when the pulse is, say, 70 per minute than when it is 120 per minute. It is altogether probable that this is one reason why such drugs as digitalis and veratrum viride help the heart at times. Furthermore, in the recumbent position the heart is saved the labor of elevating that part of the blood which goes to parts above its own level.

Rest of the voluntary muscles is still more important. A man working eight hours per day expends 288,000 kilogrammeters or approximately 1,500,000 foot pounds of energy. In slow walking a man expends 21,600 kilogrammeters of energy per hour. Of course, this expenditure is prevented by rest in bed. In febrile conditions there is another factor. All muscle movement generates heat. It is estimated that four-fifths of the body heat is generated in the muscles. Only one-fourth of the energy of a muscular contraction appears as mechanical force, the rest is converted into heat. Almost all the energy of the heart finally appears as heat. Very high temperatures have been observed in tetanus owing to the violent muscle contractions.

Muscle rest also secures rest for the motor neurones. In man we may be sure that the larger part of the nervous system will be relieved of its work when the muscles are at rest. The expenditure of energy by activity of the intellect is not so easily demonstrated, but Bouchard has shown that the toxicity of the urine is increased by mental work. It must follow that decreasing the output of energy relieves the digestive, assimilative, and eliminative organs of a corresponding amount of work.

The use of local rest is exhaustively explained in various works on the principles of surgery. Briefly, the benefits to be obtained are the prevention of the loosening of venous thrombi, the favoring of adhesions, and the prevention of the forcing of bacteria and septic matter into uninfected areas. The good results of local and general rest are well illustrated by the Ochsner treatment of appendicitis. Olshausen has utilized the same principle in the treatment of puerperal septicemia. He enforces absolute rest, even cautioning as to bathing and change of linen on account of the dangers in-

volved in muscle movement, particularly the loosening of venous thrombi.

The great mistake constantly made is in not enforcing absolute rest early enough. The advice of Dr. William Pepper in regard to typhoid fever was eminently wise. He said: "From the first hour that the suspicion of typhoid arises the patient should be put to bed and kept there until the close of the case. The use of the bedpan and urinal should be insisted upon from the start." He had the record of treating one hundred consecutive cases of typhoid fever without a single death.

It is but a fair inference from the facts just reviewed that like good results might come from early and continued rest in dysentery, pneumonia, la grippe, puerperal fever, tuberculosis, and other depressing and dangerous febrile diseases.

ANTITOXIN RASHES.

BY FREDERICK A. SUTLIFFE, M.D., PHILADELPHIA,

Formerly Resident Physician at the Philadelphia and Municipal Hospitals.

The study of the various types of rashes following the injection of diphtheria antitoxin is a subject of considerable interest from a diagnostic standpoint. Not always is the physician, in making his rounds, able to say at a glance, "This is the rash of antitoxin." Ordinarily the ringworm-like appearance of the various macular areas, shading in color from a faint pink to a fiery red, with a ring of normal appearing skin, the urticarial papular eruption, and the ever-present itching make the diagnosis comparatively easy.

The variety of skin "lesions" assumed by this peculiar manifestation of the presence of a foreign serum in the body is almost endless. The urticarial element is present possibly in all, though sometimes it is very subdued. Indeed, there are some cases in which itching is scarcely noticed. In a study of 123 rashes occurring in a series of 630 cases, a rough classification of the character of the rash was as follows: Macular, 10 cases; urticarial lesions, 53; maculopapular, 20; scarlatinal, 5; large, blotchy, slightly elevated areas, 30; small diffuse macular, 5.

These were the main characteristics of each case when first noted. The rash often changes in appearance greatly from hour to hour, areas fading or becoming brilliant in color, papules and elevated blotchy patches appearing and disappearing in the usual sudden urticarial way.

In those designated "macular," urticaria of the skin was manifest, and urticarial eruptions may have been present and disappeared before the case was noted. The same is true of the "scarlatinal" group, the type which causes so much perplexity as to whether or not one is dealing with a "mixed" case. Usually urticaria, and the atypical appearance of the rash on various parts of the body, or its more or less local position, clears the diagnosis. Rarely it does not, and some annoying mistakes have occurred.

The time of appearance of the rash may range from a few hours to three weeks, or possibly more, after the injection of the antitoxin. The onset of the rash is usually preceded by a rise of temperature ranging from about 100° to even 105°. In four of the cases there were "joint pains," more or less severe. Slight occasional pains were noted in a few others. The main annoying accompaniment is the intolerable itching of the more severe types, and in a lesser degree in the lighter forms.

It cannot be denied that urticaria from other causes may arise during an attack of, or convalescence from, diphtheria. But the peculiar coloring of the skin, the "patchy" macules, seldom accompany urticaria from other causes in such a characteristic way.

In the series of cases studied, not taking note of the evanescent or local rashes appearing soon after injection, the time of appearance of the rash following injection was as follows: One on the second day after injection, five on the fourth, six on the fifth, nineteen on the sixth, twenty-one on the seventh, twenty-two on the eighth, five on the ninth, eight on the tenth, six on the eleventh, six on the twelfth, five on the thirteenth, five on the fourteenth, four on the fifteenth, six on the sixteenth, two on the seventeenth, one on the eighteenth, and one on the twentieth.

The day of disease on which the antitoxin was injected apparently has no rela-

tion to the time of appearance of the rash. In the following table the day of disease is in the vertical column, and the number of days the rash appeared after injection, in the horizontal:

The length of time the rash persists varies markedly in different cases; sometimes in a few hours the skin is again absolutely clear. In others the rash persists for days, will almost or quite disappear, and then reappear suddenly. Sometimes the rash will disappear for days and then reappear. Twelve such cases occurred in the 123 noted, the time of reappearance ranging from three to ten days.

Rarely the rash assumes a measly type, but the absence of catarrhal symptoms, of Koplik's spots, of the short, peculiar, hacking cough of measles, of photophobia, possibly no history of exposure, or it may be a previous history of measles, combine to discredit this diagnosis. When catarrhal symptoms are present in this type of rash the diagnosis is correspondingly more difficult.

The scarlatinal type affords more difficulty in diagnosis. Here the resemblance to scarlatina is pronounced, and as diphtheria is not rarely complicated by an added scarlatina, it sometimes becomes a matter of great difficulty to decide. The absence of vomiting, of the red tongue with enlarged papillæ, of general glandular enlargement with tenderness, of pronounced circumoral pallor, with the presence of urticaria, and a lack of the distinct punctate appearance of the typical scarlet rash, usually clears this. As stated before, however, it is sometimes extremely difficult to decide, and rarely, waiting for desquamation while properly isolating the child is about the only course left for one to pursue.

It might be said that the knowledge of antitoxin having been administered

would clear all such cases. Scarlatina, however, does not respect or fear antitoxin, as does diphtheria, and where circumstances favor or allow it will attack a child whose skin is filled with antitoxin. The mere fact that the child already has diphtheria and has had antitoxin does not necessarily mean that every rash that may arise during the course of the illness is due to antitoxin. Grievous danger to other children near the little sufferer might arise if this idea were adopted in contagious disease hospitals.

Another fact noted, without any data as to the exact proportional number, is that blondes seem more subject to rashes, and that the rashes are of a more severe type as a whole in them than in brunettes.

THE DIFFERENTIATION AND TREATMENT OF EYE DISEASES MOST COMMONLY SEEN BY THE GENERAL PRACTITIONER.¹

By LOUIS F. LOVE, M.D.,
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The busy general practitioner, who is called upon to diagnose and treat every ailment, every diseased organ, every ill, fancied or real, who is expected to be ready to meet every emergency, and who must occasionally diagnose diseases with which he can, by no possibility, have a working familiarity, often suffers from the greatest perplexity in the field of medicine which is devoted to the diagnosis of diseases of the eye. When we consider how important is the differentiation of a simple conjunctivitis from an iritis, and an iritis from a glaucoma, and when we bear in mind how brief is the instruction regarding the visual organ that our medical students receive to-day, it is cause for small wonderment that the average physician is reluctant to treat inflammatory diseases of the eye.

It shall not be the aim of this paper to dwell on what might properly be considered the more special treatment of eye diseases, but rather to point out to the general practitioner those features in the affections of the visual organs that he will most often be called upon to recognize,

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and that will enable him to make a rational diagnosis in what has long been held to be a special field of medicine. These points, while necessarily brief, must needs be so wide-embracing as to include the minor ailments and pathologic conditions that are the offshoots of the more serious diseases of the eye. Of these, perhaps that most commonly met with by the man in general practice is conjunctivitis.

CONJUNCTIVITIS.

In order properly to understand the various inflammations grouped under this head it is well to remember that in the conjunctiva there are two vascular systems—that of the posterior conjunctival vessels and that of the anterior ciliary vessels. Because of the many anastomoses that exist between these two vascular districts we find, in severe inflammations of the anterior section of the globe, that both are injected. Fortunately, however, we are able, as a rule, readily to distinguish between conjunctival and ciliary injection.

Conjunctival injection presents to the eye a superficially disposed network of vessels that can easily be moved along with the conjunctiva and in which the individual meshes are distinctly visible. The injection, moreover, is of a vivid scarlet or brick-red color.

Ciliary injection occurs as a rose-red or pale-violet zone around the cornea—*circumcorneal injection*—in which individual vessels cannot clearly be recognized. In ciliary injection the redness is diffuse, and when the conjunctiva is displaced, the vessels do not move with it. This is a most important point in the differential diagnosis between an inflammation of the conjunctiva and diseases of the deeper structures of the eye, such as iritis and glaucoma.

In a *simple conjunctivitis* we have congestion of the posterior conjunctival vessels, and in *iritis* and in *glaucoma* we have injection of the anterior ciliary vessels or of both vascular systems.

The conjunctiva covers the posterior surface of the lids and the anterior surface of the eyeball, forming the conjunctival sac. For descriptive purposes we make three subdivisions: The conjunctiva tarsi, covering the lids; the conjunctiva bulbi, covering the anterior

segment of the eyeball; and the portion that is reflected from the lids to the globe—the fornix conjunctivæ, or fold of transposition. In diseases of the conjunctiva it is this last fold—or folds—that requires special attention.

Diseases of the conjunctiva form, on an average, 30 per cent of all affections of the eye; in epidemics, of course, this percentage is much higher.

For general clinical purposes conjunctivitis may be divided into three forms: the hyperemic (and congestive), the catarrhal, and the purulent. There are, however, many subdivisions, such as croupous, diphtheritic, traumatic, trachomatous, scrofulous, etc., but in these forms the conjunctivitis is merely a symptom of a special exciting cause.

In the majority of cases of acute conjunctivitis the morbid matter is brought into contact with the conjunctiva through the medium of the atmosphere; this has been proved in a form of conjunctivitis by the discovery of a special bacillus by Koch-Weeks, Morax-Axenfeld, Hansell, and others. But there are also instances in which a poisonous principle, circulating in the blood, has been the cause of the conjunctivitis. In measles, before the rash appears upon the body, there is frequently observed a conjunctivitis, this constituting, therefore, a prominent symptom of a beginning rubeola.

Acute catarrhal conjunctivitis is characterized by the following symptoms: a sensation as of a foreign body, such as sand, in the eye (a most important symptom), burning, itching, photophobia, lacrimation, and agglutination of the lids on awakening. There is a vivid scarlet or brick-red congestion, increasing away from the cornea and toward the fornix, which is not the case in iritis or glaucoma, for in these diseases we have the injection most marked and intense around the cornea and more diffused. It is at this point that we call to our aid a drug that will help us in making our diagnosis. A drop or two of adrenalin will give us accurate and timely diagnostic assistance. If the entire surface of the conjunctiva becomes pallid in a uniform and regular way, we are dealing with a simple conjunctival affection. If an iritis is present, the conjunctival hyperemia disappears, first leaving the characteristic violet tint

around the cornea. If the iritis is in its incipency, another instillation of adrenalin may remove all traces of hyperemia. As the action of this drug is very rapid, the observations should be made with the utmost caution. If the iritis is severe and the congestion intense and diffuse, repeated instillations of adrenalin must be made.

If the conjunctivitis proves severe, a marked intensification of the initial symptoms follows in about twenty-four hours. There may be some pain or tenderness of the globe, but it is not neuralgic, as in glaucoma or iritis, a fact to be remembered in differentiating between these diseases. The secretion, at first mucoid, now becomes mucopurulent; there may be subconjunctival hemorrhages, and at times swelling of the conjunctiva around the cornea occurs. Flakes of mucus may be seen floating in the profuse lacrimal fluid.

The *prognosis* of acute catarrhal conjunctivitis is favorable in uncomplicated cases, the disease disappearing spontaneously in from eight to fourteen days.

The *complications* that arise in conjunctival catarrh consist for the most part of *corneal ulcers* and at times of iritis. The onset of these complications is manifested by an increase in the pain and heightened photophobia. These complications are often the result of attempts at treatment of the catarrh by the laity, who do not hesitate to apply bread-and-milk poultices, tea-leaves, raw meat, urine, or even a bit of placenta.

In the spring and fall of the year, when catarrh of the air-passages, coryza, coughs, etc., are prevalent, epidemics of this form of conjunctivitis are most likely to occur.

The transmission of the secretion from one individual to another plays an important part in spreading the disease; for this reason the indiscriminate use of towels, handkerchiefs, and the like should carefully be guarded against. Search should always be made for foreign bodies, for atoms of dirt or dust may have become lodged in the cornea or in the conjunctiva of the upper lid. Indeed, a conjunctivitis is frequently brought on by a foreign body creating a condition that may give entrance to an infective germ; a type of this form is the so-called "*pinkeye*."

The *treatment* of acute conjunctival catarrh is very simple: Frequent flushings of the conjunctival sac with a saturated solution of boric acid, with a little cocaine or sulphate of zinc combined, anointing the edges of the lids with borated vaselin to prevent agglutination, and the application, if necessary, of one of the silver salts, such as protargol or argyrol, in 5- to 50-per-cent solution, according to the gravity of the case.

Occasionally recourse must be had to nitrate of silver, which should be used in weak solution, for it must always be remembered that by a too energetic use of this remedy a simple catarrh may be aggravated and the symptoms augmented.

Argyrol or protargol may be applied to the everted lids by means of a pledget of cotton twisted upon an applicator. The use of suprarenal preparations has also recently been recommended.

The patient should be instructed to avoid dust, smoke, and vitiated air in general, and pass as much of his time as possible in the open air. At the onset a purge should always be administered. Stimulants, as a rule, should be avoided. The nasopharynx should be carefully looked after, and refractive errors, perhaps, corrected.

The use of atropine cannot be too strongly condemned. In a simple conjunctivitis the drug is useless, and in some cases may, indeed, do much harm. It should never be used unless there are decided indications for its employment.

DIFFERENTIAL DIAGNOSIS BETWEEN CONJUNCTIVAL CATARRH, IRITIS, AND GLAUCOMA.

In differentiating these diseases one from the other we have as valuable diagnostic aids—first in importance, the appearance of the *injection*. In iritis and glaucoma we find the violet or dusky-red ciliary injection. In conjunctivitis, as has been said, the injection is of a vivid scarlet color. Next in diagnostic value is *discoloration of the iris*, the presence of which should be ascertained by careful comparison with the normal eye. In conjunctivitis the pupil remains unaffected, whereas in iritis and in glaucoma the iris is discolored. The diagnosis is influenced also by the *size* of the pupil, which is contracted in iritis, dilated in glaucoma, and

unaffected in conjunctivitis. In conjunctivitis there are some pain and tenderness, but the pain is not neuralgic, as in iritis and glaucoma.

An inflammatory glaucoma is often mistaken for an iritis by the presence of ciliary injection and discoloration of the iris, symptoms common to both diseases, a mistake which is rendered doubly grave by the fact that although we use atropine freely in the treatment of iritis, we know that it must never be instilled in a glaucomatous eye.

In glaucoma the injection is decidedly venous in character or dusky-red in color; the episcleral veins are large and tortuous, owing to the pressure on the vasa vorticosa throwing greater work on the anterior ciliary veins. In iritis the injection is general and intense, especially circumcorneal injection of the ciliary vessels. In conjunctivitis the injection is velvety and increases away from the cornea and toward the fornix.

In acute glaucoma a characteristic symptom is loss of vision, frequently coming on suddenly and perhaps out of all proportion to the apparent inflammatory condition; in iritis the loss of vision greatly depends on the cloudiness of the aqueous or the exudation in the pupillary space. In simple conjunctivitis the vision is unimpaired, depending on the photophobia or the amount of mucus or pus which may float over the cornea.

Photophobia and deep ciliary injection indicate that a more serious condition than a simple conjunctivitis exists, and in the presence of these symptoms we should seek for a foreign body in the upper lid or on the cornea, an ulcer, or even an inflammation of the deeper structures of the eye.

CONJUNCTIVITIS OF THE NEW-BORN (OPHTHALMIA NEONATORUM).

All authorities are now agreed that ophthalmia neonatorum is due to but one cause, and that is infection. Statistics also show that the disease is an easily preventable one, and one that is readily cured if recognized in time. It is with the general practitioner that the early diagnosis of this disease rests, for it is on prompt treatment in the early stages that the preservation of sight depends. The disease is readily recognized, for all

physicians are familiar with the congested eyes, the swollen conjunctivæ, the overlapping lids, from which thick pus exudes, and the dim and embedded cornea.

The affection begins as an acute inflammation, which has usually been *transmitted through the virus of gonorrhea*. The carriers of the contagion are the gonococci discovered by Neisser. These microorganisms are found both in the pus secreted by the conjunctiva and in the superficial layers of the conjunctiva itself. After infection has taken place the disease appears in from a few hours to three days. The eyelids are hot, red, and edematous, so that the little patient cannot keep them open. The conjunctivæ of the lids and eyeball are greatly swollen, the swelling extending up to the cornea—so-called chemosis. The secretion is now serous and colored red by the admixture of blood, and some flakes of pus are present. In a few days the swelling begins to subside, and a profuse secretion of pus appears. Corneal complications are now apt to arise.

In the *treatment* of this disease, as well as in gonorrheal ophthalmia of the adult, prophylaxis plays an important rôle. As the disease is due to infection from the urethral or vaginal discharge or from an eye affected with blennorrhea, the fingers play a conspicuous part in transmitting the disease. The patient and those in attendance should, therefore, be enjoined to exercise caution, and the physician himself must guard against infecting his own eyes.

In all cases a careful microscopic examination of the pus should be made; the gonococci will not, however, be found invariably present. A vaginal discharge in which gonococci cannot be demonstrated is frequently a cause of ophthalmia neonatorum.

Treatment consists of frequent washings with a saturated solution of boric acid or a weak solution of corrosive sublimate or potassium permanganate.

Cold applications may be used in the early stages, but *never in the late*, for fear of devitalizing the cornea. Atropine should always be instilled as a protection against corneal ulceration. In the second stage of the disease nitrate of silver or one of the newer preparations of silver, such as protargol 30 per cent, or argyrol

50 per cent, may be applied to the lids twice or oftener daily.

If there is difficulty in everting the lids, argyrol or protargol should frequently be instilled into the eyes. Stupes as hot as can be borne are valuable.

To Credé is due the credit for having reduced the percentage of infants afflicted with this disease born at the Lying-in Asylum in Leipsic from 10.8 to 0.2 per cent. His method consists in the instillation of a two-per-cent solution of nitrate of silver into the conjunctival sac of all new-born infants. In some cases the reaction to this is quite severe, so that much weaker solutions must be used.

DIPHTHERITIC CONJUNCTIVITIS.

Fick, in describing this disease, says: "The production of coagulating secretion on the surface of the conjunctiva is characteristic of croup, but in diphtheria there is an inflammatory condition in which a firm exudate lies within the tissue of the mucous membrane itself. In the severest cases the croupous membrane may, therefore, carry the epithelium with it, but when the diphtheritic membrane is cast off, the mucous membrane itself is likewise destroyed."

In diphtheritic conjunctivitis the picture presented is that of blennorrhea at its height. The upper lid is bluish-red, hot, swollen, and hard and unyielding to the touch. It is so sensitive that it cannot be everted without giving rise to exquisite pain. The conjunctiva of the lid appears grayish-white and smooth. Blood-vessels are absent or only partly visible. In the second stage the disease resembles blennorrhea, but in the latter disease the red papillæ are part of the swollen mucous membrane, while in diphtheria they are wound granulations.

Small diphtheritic patches are frequently seen at the edges of the eyelids, at the nostrils, and at the corners of the mouth. Occasionally nasal or pharyngeal diphtheria is also present. The disease is the result of infection by the bacillus diphtheriæ or the Klebs-Loeffler bacillus.

In the *treatment* hot applications are, as a rule, better than cold. Frequent washings with boric acid solution and the use of atropine are to be recommended. The healthy eye should be protected by means of a Buller's shield. Diphtheria antitoxin

and other constitutional remedies and tonics are indicated. The prognosis, even as to life itself, should be guarded. In severe cases sloughing of the cornea is the inevitable result.

BLEPHARITIS CILIARIS.

This is one of the most frequent of all eye diseases, the cilia with their hair follicles and glands having an abundant blood-supply.

In *squamous blepharitis* the skin between and around the cilia is covered with small white or gray scales, resembling dandruff. When the scales are removed by washing, the skin underneath is seen to be inflamed, but not ulcerated.

In *ulcerative blepharitis* the margin of the lid is covered with yellowish crusts, which, on being removed, reveal a distinct ulcerative process beneath. The disease is a chronic one and may continue throughout life.

Blepharitis ciliaris is seen most often in the anemic, scrofulous, and tuberculous, and particularly in children and young adults. The disease is often inherited. Among predisposing causes may be mentioned eye-strain, faulty hygienic surroundings, and exposure to smoke, heat, and dust.

The treatment of blepharitis ciliaris is directed toward correcting refractive errors, attention to the general constitution and to the maintenance of a proper hygiene.

Local treatment of the lids and conjunctiva is necessary, and consists in the use of white precipitate ointment (about one per cent) or the yellow mercuric oxide ointment. Among the many remedies advised are tar soap, resorcin, or salicylic acid, the last in one- or two-per-cent ointment.

The conjunctiva should be bathed with cleansing washes.

KERATITIS.

Under this heading are considered the many inflammations to which the cornea is subject; these inflammations form not only the majority of corneal diseases, but a large proportion of all eye diseases as well.

The chief symptom that is present in corneal inflammations is cloudiness or opacity. This causes impairment of vision, and is often the only symptom of

which the patient complains. In a recent inflammation, owing to the non-vascularity of the cornea, redness is absent. In most cases, however, there are pain, photophobia, and lacrimation. An examination reveals slight swelling and redness of the lids and congestion of the conjunctival vessels. An important sign is the injection of the deep subconjunctival vessels that arise from the ciliary arteries. The iris may be congested or inflamed, but this is not usually the case.

Keratitis eczematosa, phlyctenular keratitis, or phlyctenular conjunctivitis, is characterized by the formation of single or numerous vesicles (phlyctenules) on some portion of the cornea or conjunctiva, and is accompanied by photophobia and blepharospasm. It is seen in scrofulous subjects—most frequently in children before the age of puberty, and less often in adults. It occurs in connection with inflammatory diseases of the nasal passages and adenoid vegetations. "The affection often follows measles or other acute exanthemata."

The phlyctenules appear upon the cornea, usually at or near the corneoscleral junction. At first gray, they rapidly break down, forming the *phlyctenular ulcer*, with vessels running to it. Their appearance is accompanied by an exacerbation of all the symptoms. When the ulcer heals, the blood-vessels disappear, but a strip of opacity remains. A microscopic examination of the epithelium of the affected areas reveals the presence of microorganisms—*staphylococcus pyogenes aureus* and *albus*.

Interstitial keratitis is a diffuse form of the disease in which a chronic inflammation of the whole thickness of the cornea occurs, until, with superficial or deep vascularization, the cornea passes into a condition of universal haziness.

The large majority of cases of interstitial keratitis are due to inherited syphilis, but rarely it may be the result of acquired lues. After a few days of slight ciliary congestion and lacrimation a faint cloudiness appears, generally near the center of the cornea. The hazy spots, if carefully examined, will be found to be interstitial opacities. In a few weeks the entire cornea is diffusely hazy, the iris being almost completely hidden. In appearance it resembles ground glass with a

bluish-white tinge. At this time there are ciliary congestion, pain, and photophobia. *Iritis and ciliary inflammation may complicate the disease.*

The *treatment* of simple phlyctenular keratitis consists in instilling atropine in sufficient strength to maintain dilatation of the pupil, thus putting the eye at perfect rest, preventing iritis, and allaying inflammation. Hot stupes are useful in relieving pain and in promoting healing. Good hygiene should be maintained and sanitary surroundings looked into. Damp cellars are an evil that requires remedying. Local cleanliness should be assured by the free use of boric acid solution. Diet and outdoor exercise are important factors.

Of drugs, yellow mercuric oxide ointment may be used, and when the inflammatory conditions are subsiding, dusting the eye with calomel is a useful procedure.

Cod-liver oil, iron, quinine, minute doses of calomel, and arsenic should be prescribed to meet individual constitutional requirements. Refractive errors should be corrected.

In interstitial keratitis mercury by inunction is the remedy. Children with this disease not uncommonly bear large doses well, as much as two drachms of mercurial ointment daily for months not having been followed by symptoms of ptyalism. Indeed, the weight seems to increase under its use. Later in the disease tonics and cod-liver oil are required. After acute inflammatory symptoms have subsided, dionin is valuable.

TREATMENT OF CORNEAL ULCERS.

Bacteriology has not as yet been the means of furnishing accurate information for distinguishing between benign and malignant ulcers of the cornea; consequently they should all be treated in the most aseptic and, at times, antiseptic manner. *Asepticize the surroundings*—the lacrimal passage, the cilia, and the conjunctiva! "It is not impossible that a serum or an antitoxin may some day be discovered that will enable us to check the morbid process of a severe corneal infection" (Darier).

TRACHOMA OR GRANULAR CONJUNCTIVITIS.

This disease, which takes its name from the roughness of the conjunctiva, can

usually be detected by a careful inspection of both eyelids, where *trachomatous granules*—grayish or pinkish-gray pin-head-sized bodies—will be found. Moreover, there is frequently a pannus, or brawny vascular tissue, ordinarily developing from the upper margin of the cornea, and terminating in a straight horizontal border. This disease is contagious, but is becoming less common in America, owing to the more careful inspection of the eyes of European emigrants.

Treatment is directed toward effecting destruction and absorption of the granular formations and relieving inflammatory conditions.

IRITIS.

In inflammations of the iris the symptoms depend largely upon the hyperemia of the iris and the character and location of the exudate. Hyperemia of the iris is not, properly speaking, a disease, but merely a symptom, and it is only when the hyperemia becomes so extreme that an exudate is formed that a true inflammation—an iritis—can be said to exist. In iritis the acuity of vision is diminished in proportion to the amount of effusion and accompanying cloudiness of the aqueous or the exudate in the pupillary space. If the pupil is occluded, the eye is, for the time being, almost totally blind.

Among other symptoms must be mentioned, first, the *pain*. This is, as a rule, very characteristic. It begins as a dull, deep-seated pain, as if the eyeball were being pressed upon. This increases in severity as the inflammation progresses, and is accompanied by sharp twinges, usually radiating along the course of the fifth nerve. Thus it is that supraorbital neuralgia is a conspicuous symptom. Paroxysms of intense pain occur, gradually increasing in severity and number as night approaches. This pain is different from that due to any inflammation external to the eye, and is throbbing and stabbing in character.

Another important symptom in iritis is *the change in the color of the iris*, in addition to the loss of its natural luster. This is due to hyperemia, which causes a normally blue or gray iris to appear greenish—a change particularly marked when comparison is made with the unaffected eye.

Iritis may, in certain cases, *resemble*

glaucoma, but the *severity of the symptoms* will easily differentiate it from *simple conjunctivitis*. The physician may, however, occasionally be misled by symptoms common to many inflammations of the deeper tissues of the eye, such as photophobia and injection of the conjunctiva. Yet *of all inflammations of the eye, iritis is that most readily recognized*. The iris is at first discolored and contracted, and its power of movement impaired. The pupil loses its glossy blackness, there is deep ciliary injection, and the cornea is dull. When the disease has progressed to the formation of an exudate and the iris has apparently become fixed, the nature of the disease can positively be diagnosed.

Tuberculous iritis, which is an extremely rare form of the disease, is seen most often in scrofulous children or in adults afflicted with tuberculosis. The usual inflammatory symptoms appear, and *pain, pericorneal injection, and small gray nodules*, which gradually increase in size, develop. In the disseminated form of the affection these nodules are frequently seen at the pupillary margin. The disease is, of course, a grave one. The treatment is *that of iritis* and the usual constitutional treatment of tuberculosis elsewhere. If blindness ensues, enucleation is to be considered to prevent extension of the disease.

Rheumatic or gouty iritis occurs most commonly in middle life, and may be present along with other rheumatic affections. In rheumatic or gouty iritis the treatment should be directed toward relieving pain and maintaining mydriasis. The customary treatment of rheumatism and gout should also be prescribed.

In my opinion *gonorrhea is a frequent cause of iritis*, and we can usually obtain a history of gonorrhea when we fail absolutely to get one of lues. It is well, therefore, in suspected cases in the male at least, to examine the urethra and urine. Generally, however, the history of gonorrhea is not of recent date. In the majority of cases the suspicion that *syphilis is the cause of iritis* is well founded. In the secondary or tertiary stage of syphilis a form of iritis is occasionally seen, evidenced by the inflamed iris and the presence of yellowish or reddish-brown nodules—gummata or condylomata—situated generally at the pupillary border.

The treatment consists essentially of the free exhibition of mercury, local sedatives, and, as in other forms of iritis, atropine locally. Dilatation of the pupil should be maintained until all irritation has subsided. Local measures to relieve the pain and congestion, such as Swedish leeches or the Heurteloup to the temple, are useful, as are hot-water fomentations applied at frequent intervals, and dionin also may be used. Recently suprarenal preparations, applied freely and often, have been recommended in the treatment of iritis.

Chronic kidney disease is an occasional cause of iritis, and the urine should, therefore, always be examined.

In all forms of iritis the chief reliance must be placed on atropine, which should be used early and late, and in sufficient strength and frequent enough thoroughly to dilate and maintain dilatation of the pupil. Good results may be obtained by combining cocaine with the atropine in the early stages. After thorough dilatation the use of cocaine may be discontinued; atropine, however, as a rule, is imperatively demanded until all symptoms of inflammation disappear.

I desire here to dwell on *some points in the differentiation of iritis from simple conjunctivitis*, for which it is sometimes mistaken.

In *iritis* we have the severe browache, generally intensified toward night; diminished vision; a discolored iris or injection of both vascular systems—anterior and posterior conjunctival vessels; pericorneal injection; a sluggish, contracted, or immobile pupil, and slight tenderness on pressure. In *simple conjunctivitis* there is a sensation as of a foreign body in the eye, and the vision is usually unimpaired; the conjunctival injection is coarse, and there is a mucopurulent discharge, which is absent in iritis; the mobility of the pupil is unaffected, and the iris is not discolored. Tenderness is not marked. In *iritis* the injection is diffused and a circumcorneal injection can be distinguished. It must be borne in mind that an iritis may be present concomitantly with a conjunctivitis.

GLAUCOMA.

We now come to consider that most serious of eye diseases, glaucoma, a name applied to several varieties of a disease

of which increased intra-ocular tension and dilated pupil are apt to be the most prominent symptoms.

The tension of the eye may be estimated by palpating the eyeball through the closed lids with the index-finger, just as when testing for fluctuation in any other part of the body. It should be done with deliberation and care.

In making a diagnosis of glaucoma the sound eye should always be used for purposes of comparison. Under normal conditions the intra-ocular pressure is quite constant, but in morbid conditions considerable variations occur. It should be remembered that the eyeballs of elderly persons are generally harder than those of the young.

The recognition of glaucoma by the general practitioner is of the greatest importance, for in this disease, more than in any other, prompt and proper treatment may save an eye that a mistaken diagnosis or improper treatment would invariably destroy.

Inflammatory glaucoma is frequently mistaken for iritis, and, as a consequence, is treated with atropine—which, as we know, has a most disastrous effect upon a glaucomatous eye.

Glaucoma as an idiopathic disease usually attacks persons of fifty or over, although younger ones are not immune.

During the early stages the conjunctiva is seen to be hyperemic, the cornea slightly "smoky" and anesthetic, the aqueous clouded, and the pupil moderately dilated. The association of inflammation and dilatation is seen in no other disease of the eye, while the peculiar somber redness of the inflammation has its own significance. In glaucoma vision is usually much worse than in iritis—except in iritis with occluded pupil. The patient complains that he does not see well—as if a cloud of smoke were obscuring things. If there is a light in the room, it may be encircled by a halo of rainbow hues. If the physician examines the eye during the attack, he finds the cornea somewhat dull, anesthetic, and diffusely clouded, resembling ground glass. After such an attack, which usually lasts several hours, the eye may assume an apparently normal condition. As the disease progresses these attacks become frequent, and the patient complains of pain in the head, ears, and even in the

teeth. The pain is, in fact, intolerable! An examination at this time shows all the evidences of a violent inflammation—edema of the lids and of the conjunctiva, which latter is greatly congested. The injection, being preëminently of a venous character, is of a dusky-red color. The cornea is dotted and presents an appearance of smoky cloudiness. It is almost or quite insensitive to the touch. These are the symptoms of an acute attack. In the third stage the eye is completely blind.

Vomiting frequently occurs, a symptom that has often led to errors in diagnosis, the patient being treated for gastric disturbances, while the ocular symptoms were regarded as neuralgia or conjunctivitis.

Every case of glaucoma if allowed to go on untreated will probably end in complete and incurable blindness, and the necessity for an early recognition is thus at once made apparent. Treatment should be directed toward the reduction of tension. Time must not be wasted! In acute glaucoma I perform an immediate paracentesis—in other words, make a small puncture in the cornea and allow the aqueous to escape. This will, temporarily at least, reduce the tension, relieving pain, and granting the patient a few hours of much-needed rest. *For the relief of pain and cure of the disease iridectomy is without an equal.* Morphine hypodermically is invaluable, as likewise is eserine. The coal-tar products are also useful. When all is said, however, *early iridectomy* is the treatment. Mental depression must be overcome. Glaucoma cannot be healed, but in favorable cases acute attacks may be cut short by pilocarpine or eserine. De Schweinitz believes that a preliminary instillation of suprarenal extract enhances the action of cocaine, atropine, pilocarpine, or eserine.

Glaucoma may at times resemble *iritis*, but can easily be differentiated from *conjunctivitis* by the severity of the glaucomatous symptoms. In glaucoma there are the same dull ciliary injection and iris discoloration seen in *iritis*, but there is also the increased intra-ocular tension. In glaucoma the pupil is dilated; in *iritis* it is contracted.

PANOPHTHALMITIS.

In panophthalmitis following suppurative choroiditis we have edema of the lids,

so that the eye can hardly be opened. There is marked protrusion of the globe, destroying its motility. The pain is almost intolerable, high fever exists, and vomiting is frequent. These symptoms continue until perforation occurs, the purulent matter making its exit through the sclera or cornea.

The main cause of panophthalmitis is pyemia, or it may follow an injury, such as the entrance of a foreign body into the globe, or an infected wound. It may follow suppuration of the umbilical cord, vaccination, and in rare instances acute infectious diseases, such as typhoid, variola, scarlet fever, anthrax, influenza, diphtheria, erysipelas, and pneumonia.

The differential *diagnosis between panophthalmitis and phlegmon of the orbit* is easily made if we are able to expose the cornea, for in phlegmon we find no evidence of pus in the globe. The cornea, anterior chamber, and iris are normal.

Panophthalmitis may be confounded with diphtheritic conjunctivitis, but in the latter the lids are usually of board-like hardness, and we have the appearance of the membrane to guide us.

In *erysipelas* there may also be great edema of the lids, but the redness and swelling are uniform, and both lids are usually involved. In *inflammation of the lacrimal sac* we have also marked swelling of the lids, but there is the swollen and tender lacrimal sac.

The *treatment* of panophthalmitis is early evacuation of the pus, systemic measures, and, later, enucleation.

RÉSUMÉ.

In recapitulating, I desire again to dwell upon the necessity of a careful differentiation between the eye diseases just touched upon. In differentiating *iritis* from *conjunctivitis* we have, briefly, in *iritis*, the *violet ciliary injection*, easily distinguished from the *bright-scarlet injection of simple conjunctivitis*. In *iritis* there is discoloration of the iris, while in *conjunctivitis* the iris remains normal in color. In *glaucoma* we have the *dull ciliary injection and discoloration of the iris*, but, in addition, there are the *increased intra-ocular tension* and the associated dilatation and inflammation. In *iritis* the *pupil is somewhat contracted*. In *conjunctivitis* the movement of the pupil is

unaffected, whereas in iritis it is *sluggish or immobile*. In both iritis and glaucoma there is *severe pain*; in conjunctivitis there is usually *only a feeling of discomfort*.

In concluding my remarks it is perhaps needless to dwell upon the possibility of even the most careful of observers being led into error, mistaken diagnoses in this as in any other field of medicine being due not so much to a lack of skill as to haste and to what are known as "snap-shot" diagnoses.

In the preparation of this paper I have drawn from the works of Fuchs, Norris and Oliver, de Schweinitz, Fick, Swanzy, and Darier. For the sake of emphasizing important diagnostic points, some repetitions occur.

Discussion by Drs. Samuel D. Risley, Walter L. Pyle, Howard F. Hansell, John J. McLaughlin, and William S. Higbee.

In opening the discussion DR. RISLEY spoke of the importance of the early recognition of iritis and glaucoma. He also spoke of the treatment of ophthalmia neonatorum and conjunctivitis scrofulosa, etc. He recommended that the discussion be confined to those points that are of practical interest to the general practitioner.

DR. PYLE agreed with Dr. Risley as to the advisability of limiting the discussion to the points of practical interest to the non-specialist. He spoke of the dangers that lie in the indiscriminate use of silver nitrate in the treatment of ophthalmia neonatorum, and said he disapproved of the routine practice of the Credé method in maternity service. He believes promptness in detecting the disease and the employment of an almost continuous irrigation with a mild antiseptic solution, such as boric acid, to be the desiderata in the treatment of these cases.

Dr. Pyle further referred to the difficulties encountered in complete eversion of the eyelids, and to the risk of injuring the cornea. He had a hollow lid-retractor made with which to practice thorough irrigation of both conjunctival culs-de-sac. He has observed the greatest benefit to follow the use of 50-per-cent glycerite of boroglyceride in ophthalmia of the newborn, as well as in purulent ophthalmia of the adult, trachoma, and acute catarrhal conjunctivitis, the drug to be used every

three or four hours until the danger is past. He has the medicine dispensed in collapsible tubes for the patient's home use.

In blepharitis Dr. Pyle never uses a stronger ointment of the yellow oxide of mercury than two grains to the ounce. The ointment is to be rubbed up well and dispensed in collapsible tubes—ointment jars he considers objectionable, on account of their liability to exposure and contamination by dirt. In all cases of chronic blepharitis, he maintains, the first step should consist in careful refraction under a cycloplegic. Unilateral blepharitis is always suggestive of nasal or lacrimal disease.

In corneal ulceration he finds the ointment consisting of iodoform 15 grains, atropine sulphate 1/16 grain, benzoinated lard 2 drachms, well mixed and dispensed in collapsible tubes, to be invaluable. A lump the size of a match-head is rubbed into the eye every three or four hours. Dr. Pyle dwelt on the good results he had observed to follow subconjunctival simple saline and saturated saline solutions in all stages and varieties of corneal disease. He expects good results from the instillation of a 5- to 10-per-cent solution of dionin. He also called attention to some cases of serous iritis with increased tension and dilated pupil that closely resembled acute glaucoma, and spoke of the coexistence of acute glaucoma and iritis. In acute glaucoma he has seen very good results from immediate posterior sclerotomy, followed by diaphoresis, purgation, the use of large doses of salicylate of strontium, strophanthus, hot applications, and the instillation of dionin, pilocarpine, and eserine. He prefers the natural leech to the Heurte-loup instrument for ocular depletion.

Dr. Pyle concluded his remarks by referring to a case of postpartum metastatic panophthalmitis, and advocated simple incision of the purulent globe rather than enucleation in the active stage.

DR. HANSELL spoke of the tendency of medical practice toward specialization. By that, he said, he meant that the vague and indefinite conception of disease, named according to its symptoms, is giving place to an etiologic classification. He added that the reflex symptoms of eye-strain were manifold, and widely different from one another in different individuals. Thus

in one patient headache, in another digestive disturbances, in another nervousness, restlessness, and other choreic movements, may be referred, not to disease of the digestive apparatus or to organic changes in the nervous system, but to an error of refraction or an anomaly of the muscular apparatus of the eyes.

He suggested that all physicians pursue a training in one of the numerous eye dispensaries of Philadelphia, so as to become sufficiently familiar with the appearance of the eye-ground to enable them to differentiate healthy from pathologic conditions; to detect muscular insufficiencies, and, most important of all, errors of refraction. By ascribing the symptoms to their proper cause, he maintained, they would be adding not only to their own reputation as scientific practitioners, but would be acting for the best interests of their patients. By means of a magnifying-glass and a little experience the physician should be able to differentiate the principal diseases in the anterior section of the eye. Test-cards, by which the acuity of vision is learned, he declared to be invaluable; thus with an inexpensive equipment and the experience of a few weeks in an eye dispensary the non-specialist's field of practice may be greatly enlarged and his accuracy of diagnosis enhanced.

In reference to the subject of the treatment of ophthalmia neonatorum Dr. Hansell said that the treatment of this and true gonorrheal and other purulent forms of conjunctivitis as practiced by him in his service in the Philadelphia Hospital consists of constant applications of cold compresses to the closed lids, douching of conjunctival sacs with potassium permanganate solution of the strength of 1:2000, increased to 1:600 if indicated, and, after the discharge of pus, the application to the lids of a 2-per-cent solution of silver nitrate once or twice every day. As the discharge decreases and the swelling lessens the frequency of application and the strength of the solution are reduced.

Dr. Hansell further stated that he could not agree with Dr. Pyle that argyrol or protargol could be substituted advantageously for silver nitrate. He has used them both, he claimed, and has been disappointed in the results.

In answer to Drs. Higbee and McLaughlin, DR. LOVE stated that the treatment of ophthalmia neonatorum, or pu-

rulent ophthalmia, consisted in frequent washings and the instillation, by the physician, of a solution—say 2-per-cent—of silver nitrate twice daily. The advisability of vaginal irrigation of the mother as a prophylactic measure must rest with the attending physician. A vaginal infection occurring perhaps many months previously would not, he contended, be greatly benefited by simple vaginal irrigations. Dr. Love further stated that he had observed ophthalmia neonatorum to be most common in the children of primiparæ. In conjunctivitis scrofulosa the only way in which to prevent recurrence is by constant attention to diet and hygiene.

EARLY CIRRHOSIS OF THE LIVER AND ITS TREATMENT.

In the *Medical Record* of October 8, 1904, RICHARDSON asserts that hepatic cirrhosis is the result of a toxemia, and its treatment must therefore consist in the removal of the cause of the intoxication, with, at the same time, stimulation of the liver, so that it may do its part in the oxidation and elimination of the poisonous substances. Attention to gastrointestinal digestion is of the first importance, as, if the food supply of the organism is perverted or reduced, it cannot be expected to recuperate. The elimination of bile from the liver should be increased by the administration of sodium glycocholate with the addition of small doses of mercury. The fluidity of the bile can be increased by the administration of alkaline mineral waters with sodium salicylate, which latter drug seems to have some influence in increasing the fluidity of the bile. Biniodide of mercury with iodide of potassium has a very beneficial effect in many cases of nephritis which are associated with hepatic insufficiency. Professor Black, of Edinburgh, called attention to this method of treatment some years ago.

As toxemia enters so largely into the etiology of nearly all diseases, and as the liver is the organ upon which devolves the duty of extracting, oxidizing, and eliminating the toxins, it is evident that in all diseases hepatic insufficiency should be promoted, an important factor of which is a free elimination of bile.

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Leading Articles.

THE TREATMENT OF THE EARLY STAGES OF TUBERCULOSIS OF THE LUNGS.

On several occasions in the past when discussing the value of tuberculin as a diagnostic agent in the examination of patients suspected of being the victims of infection of the lung by the bacillus tuberculosis, we have brought forward the idea that in many of these cases the physician, who is careful and skilful in the study of physical signs in the chest, can often obtain information which is quite as reliable for diagnostic purposes and is quite as definite in determining the condition of the patient as are the results which follow the injection of tuberculin into a person who may be suspected of having fallen a victim to the disease. Editorial and other writers in many medical journals have repeatedly bemoaned the increasing tendency of physicians to study diseases by laboratory methods and by laboratory tests rather than by the more old-fashioned study of the manifestations of disease by direct examination of the patient.

While we intend in no way to diminish or belittle the value of the various laboratory aids to diagnosis which have been brought forward within the last few years, it is nevertheless to be regretted that with their appearance busy practitioners are wont to rely upon them too exclusively in reaching conclusions as to the condition of the patient. So, while it is true that the bacillus in the sputum of the patient is of very great value in determining that he has become infected by this microorganism, it is a misfortune that the physician who relies entirely upon this sign often does not, by a careful examination of the chest, determine, to some extent at least, the extent of the disease and the part of the lung which is involved.

In this connection we have read with much interest an article in the *Boston Medical and Surgical Journal* of December 8, 1904, in which Dr. Perkins, of Providence, Rhode Island, discusses the diagnosis of incipient pulmonary tuberculosis, and emphasizes the fact that it is quite possible to make a diagnosis of this condition without the finding of tubercle bacilli in the sputum. The difficulty in the diagnosis of many of these incipient cases is that there is no sputum to be examined, and even if some sputum is expectorated, it rarely contains bacilli; or, in other words, the bacillus does not appear until the process in the lung is so far advanced that some breaking down is beginning to develop. However valuable the discovery of the bacillus, the failure to find it is of no value whatever. As a matter of fact the discovery of an area in either apex in which there is a harsh inspiratory sound or a prolonged expiration is exceedingly indicative of pulmonary impairment, and this indication is still further supported if careful percussion reveals an impairment of resonance on percussion, and if auscultation, when the patient whispers, shows the presence of increased vocal resonance, or pectoriloquy. If these local signs are combined with some impairment of health, some loss of weight, and some loss of vigor, the physician is justified in regarding the patient as one who has a tubercular infection, or if the infection is not tubercular but influenzal, he is certainly justified in considering that the condition is so favorable to the growth of the bacillus that the patient should be treated as one of incipient tuber-

culosis, and sent to a climate where the best conditions are present for the recovery of health.

It is exactly at this time in tuberculosis that almost every case may be said to be capable of cure, and could every case of primary infection be recognized at this stage and be subjected to the climatic influences which are necessary for its recovery, the mortality of the "modern plague" would be very much lower. The difficulty with the profession at the present time is that early tubercular infections are not recognized until they become so marked that their presence is forced upon the medical attendant, and the other difficulty is that the medical attendant on discovering these marked lesions remembers that climatic treatment produces wonderful results in many cases of pulmonary tuberculosis, but fails to recollect that these wonderful results are chiefly manifested in incipient cases and often fail to materialize in those cases which are well developed. The result is that the patient is ordered away to some health resort when nothing but a miracle can save him, is so ill that his existence away from home is a misery because of homesickness and lack of creature-comforts, and so feeble that the necessary journey adds materially to the exhaustion already present. We continually hear from physicians in Denver and other places to which consumptives resort, that these places are overcrowded with cases which are so far advanced that a cure is hopeless, and so poor financially that they speedily become a burden upon the local community.

In much the same way as it is unfair to expect of antidiphtheritic serum that it will save life when employed several days after the onset of diphtheria, when the heart and other vital organs are profoundly poisoned or diseased, so is it unfair to imagine that resort to a favorable climate may cause the recovery of a lung which is completely consolidated or contains a large cavity. The kidneys and other organs are also impaired in function by the amyloid changes which have resulted from the septic processes in the lung.

The very hopefulness of the average consumptive aids in leading the physician to believe that a climatic change is advantageous. But no case should be sent away unless the condition is so incipient

that a fair chance for recovery is clearly present. These remarks hold with particular force in regard to persons who are of moderate means. Witherbee has recently pointed out that Phoenix, Arizona, which contains a population of from fifteen to sixteen thousand persons, has one-fifth of these as health-seekers, fully two-thirds of whom are in such a condition that they should never have been allowed to leave home. The result is that hospitals and other charitable institutions are filled with dying consumptives who have not the strength nor the means to get back to their own firesides.

It occasionally happens that incipient cases, forced to leave home by their physician, make such speedy recoveries that they chide him with having caused them unnecessary alarm, and forced them to go away when no need existed for such a change in their mode of life. But it is better to be chided by the patient who has recovered than by the one who has been sent away too late to obtain real benefit.

THE USE OF COPPER SULPHATE FOR THE PURIFICATION OF WATER.

In the November issue of the THERAPEUTIC GAZETTE we drew attention to the very valuable experiments which have been carried out in the government laboratories in Washington, and in a number of reservoirs, for the purpose of determining the value of copper sulphate for the purification of algæ-polluted waters, and at that time we pointed out that these investigations had not only proved that waters which were foul by reason of the growth of algæ might be purified and rendered agreeable, but more important still, that the introduction of such minute quantities of copper sulphate as 1 to 50,000,000 also exercised an antiseptic or even germicidal influence upon typhoid bacilli. It was stated in that editorial that experiments made by competent bacteriologists in the laboratories of the city of Philadelphia confirmed the investigations of the government laboratories in Washington; and further, it was shown that the storing of water in clean copper vessels for several hours also tended to destroy typhoid germs.

Since the writing of this editorial note, to which we are referring, an address has

been delivered before the American Philosophical Society by Dr. George T. Moore, under whose direction in the Laboratory of Plant Physiology in Washington most of these valuable experiments have been made. It has now been proved beyond all doubt that the bad odor and taste in water which is kept in reservoirs is for the most part due to a group known as the "algæ," and particularly to those forms which are popularly known as "pond scum," "green scum," etc. In some instances the disagreeable odor is produced by the death of these organisms and their consequent decomposition. But in other cases the living algæ liberate an oil, a very minute quantity of which affects an immense amount of water. Filtration, while removing the algæ, does not remove the noxious character of the water in which they have existed.

As an interesting illustration of the ability of copper sulphate in minute quantities to destroy these growths, Dr. Moore cites the results of experiments which have been made on a large scale on the cress ponds of the Southern United States. Those who are interested in cultivating cress found that after it had been cut and before a new growth could develop, a heavy mat of algæ would form upon the surface of the water which would prevent the growth of the cress plant. It was found that the introduction of minute quantities of sulphate of copper in no way injured the cress, but in a very short time exterminated the algæ.

In the purification of reservoirs containing water for drinking purposes a large number of instances are now on record in which copper has been employed with success, varying from places in the Eastern States to places as far West as Montana.

Those who have advocated the employment of copper sulphate for the purification of water which is contaminated by germs have sometimes been misunderstood by those who are in favor of the filtration of water-supplies. As a matter of fact the advocates of the copper method also indorse all adequate plans of filtration, and only advocate the use of copper as an additional means of preventing the transmission of disease. This is the more important because it not infrequently happens that water which is pure when it

enters the reservoir, by some means becomes contaminated. Thus, Moore cites an instance in which a large storage reservoir was flooded owing to the breaking of a levee, and the use of copper sulphate diminished the number of bacteria from 5000 per cubic centimeter to less than 50 per cubic centimeter. He also mentions the instance of a spring which was accidentally polluted, and which gave rise to over fifty cases of typhoid fever in less than a week. By the use of sulphate of copper the water was completely sterilized, and it was possible to continue using the spring within five hours.

It would seem to be proved, therefore, beyond all doubt that copper sulphate is valuable for these purposes, and the question arises as to whether its use in these infinitesimal quantities can be harmful to those who take the water which contains it. In the same issue of the *American Journal of Pharmacy* which contains Dr. Moore's address, there are published expressions of opinion in regard to the deleterious influence of copper when taken internally, the editor asking the opinion of several persons who are supposed to be informed on this matter. Among these may be mentioned Dr. Holland, the Professor of Chemistry and Toxicology at the Jefferson Medical College, and the Editor of the THERAPEUTIC GAZETTE. These opinions definitely indicate that these minute quantities of copper are without any deleterious influence. Indeed, there is nothing in literature that indicates that copper is ever really a poison, unless it is taken in amounts which are enormous as compared to those employed in the purification of water. Dr. Moore, in speaking of this question, cites an interesting instance in which a dealer in green canned vegetables was sued in England for using copper as a color preservative. Although there was much testimony as to the harmfulness and harmlessness of this substance, the judge ruled in favor of the defendant on the ground that he had been selling peas canned and greened by the use of copper for thirty-six years; that at the time of the suit 20,000,000 cans of these peas were being sold each year, yet the prosecution was unable to bring forward a single instance of sickness or injury which could be attributed to the use of these vegetables. It is interesting to note that a single can of these peas contained

several hundred times more copper than would ever be used in the purification of water.

Up to the year 1899 the French government forbade the use of copper for the purpose of coloring vegetables, but since that time it has permitted the employment of this substance for this purpose, expressing the opinion that there is no longer any reason to oppose the system of greening preserved vegetables by means of the salts of copper. These facts seem to us to set aside the objection of those who have urged that minute quantities of copper might be deleterious; the more so as oysters and a number of other articles of food naturally contain greater quantities of copper than are found when it is used in the manner we have suggested.

SURGICAL TREATMENT OF BUBOES.

It is well known that inguinal lymphadenitis may be secondary to an infection of the external genitalia, the anus, or the lower extremities; that these inflamed glands may under proper treatment undergo resolution, or may soften and break down; that the pus which they contain may teem with microorganisms or may be sterile; that the sinuses left as the result of spontaneous evacuation may continue for a long period.

As a rule, even in the case of chancroids, a thorough cleansing and drainage of the focus of infection, combined with rest, the application of heat and moisture, and appropriate constitutional treatment, will prevent the softening of a beginning bubo.

When softening has taken place, and before the bubo has actually opened, rapid cure may be accomplished in the great majority of cases by a procedure so simple and so frequently published in its various modifications that it is difficult to account for its failure of popular adoption. This procedure consists in evacuation of the fluid, washing out of the necrotic sac by a mild antiseptic, and applying a clean, sterile dressing. The preparation for this operation should be made as carefully as for any other procedure the success of which depends upon absolute cleanliness.

The skin is then punctured with a tenotome. This puncture can be made painless by means of freezing or by the injection of eucaïne. The contents of the sac

are gently squeezed out through this tenotome opening. When more than one gland is involved and softened, if possible a communication is made through the one opening. If this is not practicable, each separate gland may be punctured. When the fluid is evacuated, an antiseptic solution is injected by means of a syringe, the conical nozzle of which entirely occludes the puncture. This allows the pus sac to be distended.

A three-per-cent carbolic solution answers well for this injection, though the best results have been obtained by the use of iodoform.

Hermann (*Wiener klinische Rundschau*, No. 46, 1904) reports 61 cases treated by injection of the sac with a 10-per-cent iodoform glycerin emulsion. This was driven in and squeezed out twice. The sac was then filled for the third time with the emulsion, and a sterile bandage was applied. This treatment was repeated the following day, but one iodoform injection being made, and this second dressing was left on until the fifth day.

About 90 per cent of cases were entirely cured in eight days, and neither recurrence nor complications of any kind were noted.

This puncture, evacuation-and-injection treatment is desirable in chancroidal buboes, since it happens not infrequently that the latter on free opening become infected with the Ducrey bacillus, and run a typical chancroidal course. It is not applicable to those cases which have already undergone spontaneous opening, and in which there is multiple lymphatic necrosis, with the formation of tortuous sinuses.

INDICATIONS AND THERAPEUTIC VALUE OF PROSTATECTOMY.

Because of the wave of surgical enthusiasm in regard to the operation of complete prostatectomy incident to the greatly lessened mortality following improvement in technique and surgical cleanliness, there is some danger of forgetting that partial or complete retention of urine in men over forty-five is not always due to a true hypertrophy, meaning by this term an adenomatous overgrowth; that it is, at times incident to a proliferating prostatitis caused by chronic inflammation and asso-

ciated frequently with spasm of the vesical neck.

Albarran calls attention to the fact that this form of prostatitis may be observed at any age, even in young men. The symptoms are those of an insidious prostatic hypertrophy with moderate incomplete retention. In its progression the disease is slow. On palpation the gland is of medium size and of even consistence. It may be unduly soft. Sometimes nodules or irregularities are detected, and exceptionally the gland is extremely sensitive. In young people thus afflicted massage is curative. In those of more advanced age prostatectomy is usually futile or gives only amelioration. At times it distinctly aggravates the symptoms.

Even in cases of true prostatic hypertrophy it must not be forgotten that with modern methods it is possible to practice catheterization as frequently as may be needed without causing vesical infection, and without in any way impairing the health of the patient. This end is most easily attained in those patients suffering from moderate residuum, and in whom the vesical tonus is not seriously impaired. Such patients are subject to occasional attacks of complete retention incident to sudden congestion, but unless infection supervenes or unless the residuum is steadily increasing prostatectomy is the operation of choice rather than of compulsion.

It should be remembered that infection is most likely to occur at the beginning of catheterization, and that at this time precautions against it should be most rigorous. Moreover, the systemic depression incident to infection is much more severe at first than in the later stages of the inflammation.

As an argument in favor of the catheter it is noteworthy that those cases do best after prostatectomy in which this instrument has been regularly used, and that those do worst in which because of imperfect emptying of the bladder by voluntary effort this viscus has become greatly dilated.

As to the choice of methods, it has been conclusively established that partial prostatectomy is unsatisfactory in its results, Louis and Burckhardt showing that not more than 31 per cent are cured, and that the mortality is as great as that of total prostatectomy.

Considering the route by which the prostate is removed this operation can be accomplished through a perineal incision or through an opening made suprapubically into the bladder.

A collection of 813 total prostatectomies (Proust) by the perineal route shows that 58 died, a mortality of a little over 7 per cent. In this tabulation every death occurring within a month of operation is counted as incident to surgical interference. Hemorrhage, shock, and infection are all rare in this operation, and considering the class of cases in which it is performed it is fair to say that its immediate operative mortality shows it to be one of the safest operations of surgery. Deaths were usually due to cardiac, pulmonary, or embolic sequelæ, attributed with few exceptions to the depraved constitutional condition of the patients at the time of operation.

Lesions of the rectum constitute a fairly common postoperative complication, resulting in recto-urethro-perineal fistulæ. Incontinence of urine and ultimate great difficulty in passing the catheter have also been noted. Some patients remain absolutely and permanently incontinent, and this is most likely to occur after removal of very large prostates. Secondary strictures are very rare. A light form of epididymitis is noted in from 10 to 30 per cent of the cases. As a result of the operation both ejaculation and erection are suppressed and there is loss of sexual power, though Young's ingenious modification by which the half-inch of prostatic tissue containing the ejaculatory canals is preserved offers a fair prospect of avoiding this sequel.

The immediate results of the operation are the prompt subsidence of urinary fever and digestive disturbances. In cases of recent complete retention, preceded by a long period of partial retention, the bladder, even after prostatectomy, does not completely empty itself in about one-third of the cases. In those cases of long-standing chronic complete retention, however, in which the catheter has been used, the cure is usually complete. Very exceptionally there is a recurrence of symptoms after prostatectomy. As a rule micturition becomes easier with the lapse of time. As to the general effect of operation it is as a rule rejuvenating.

Proust's collection of transvesical prostatectomy numbers 244 cases with 29

deaths, a mortality of 12 per cent, distinctly larger than that of the perineal operation, due probably to deficient drainage, since there is a comparatively large number of fatalities from infection. The postoperative complications, however, are distinctly rare. Neither a wound of the rectum nor incontinence of the urine has been noted. Fistulæ are most exceptional, the epididymis does not become inflamed, and as a rule the patient remains potent. There was but one instance of subsequent cicatricial contraction of the vesical neck in the entire series, and the ultimate results seem somewhat better than those following perineal prostatectomy. Thus Freyer of 117 cases notes 97 complete successes, all of these patients having completely regained the power of evacuating the bladder contents.

When there is increasing residuum, especially when there is increasing vesical infection and signs of renal involvement, Proust holds that neither age, debility, nor pronounced renal degeneration constitutes contraindications.

Though it might seem that in the perineal operation tearing of the rectum should be avoided, this has occurred so often in the hands of competent surgeons that it seems in some cases inevitable. It is explained on the basis that inflammatory adhesions have fixed the rectum to the prostatic capsule. As a rule immediate suture prevents the formation of a fistula.

Verhoogen had an opportunity of performing an autopsy in a case of transvesical prostatectomy some years after the operation, and noted that the prostatic urethra was only 5 millimeters long and that it was surrounded by a soft tissue which exhibited no contractile tendency. Hence he states that there need be no fear of subsequent retention, even though the prostatic urethra is torn away with the gland, holding that the vesical orifice practically becomes adherent to the membranous urethra.

Albarran has performed 66 perineal prostatectomies with only 2 deaths, while Pauchet of 43 operative cases lost 3, and Rafin of 32 cases lost 2. Legueu of 30 cases lost 3; he states that of those cured none exhibited perineal fistula, though 4 had rectal openings. In the majority of his cases the results were most satisfactory, though he notes that of eight pa-

tients suffering from incomplete chronic retention results were entirely negative, while the symptoms were even aggravated in four. Two were markedly improved and two were practically cured.

Though it is clear from the now adequate number of reported cases that the complete removal of the prostate is an operation comparatively safe, promising under proper conditions brilliant results, it is also evident that there are cases exhibiting the symptoms of prostatic hypertrophy in which the use of the catheter is a safer and more efficient procedure than surgical intervention.

Reports on Therapeutic Progress

CASTOR OIL AND SALTS.

CARLTON writes to the *Medical News* of October 8, 1904, on these old-time remedies. As he well remarks every physician, and especially a country physician, who dispenses his own medicines has frequent occasion to observe the administration of either castor oil or magnesium sulphate.

Both have a disagreeable taste, the mere anticipation of a dose of either being enough to produce repugnance and nausea in many individuals. Children especially soon learn to object strenuously to either.

Both castor oil and magnesium sulphate are inexpensive, and they have many desirable peculiarities not found in the other and more recent substitutes.

For some time the writer has been using large quantities of both castor oil and salts without any difficulty, and giving them continuously to delicate and sensitive patients, even without their knowledge of the fact.

Thinking that others might be interested in his formulæ, he gives them below, without, however, claiming any great originality or ingenuity in preparation:

1. OLEI RICINI DULCIS.

Vanillin, gr. xx (1.5);
Olei menth. pip., f3j (4.0);
Saccharin, 3jss (4.0);
Alcohol, f3iij (100.0);
Tinc. persicosis, f3ss (15.0);
Olei ricini, q. s. ad ½ gallon (2000.0).

Directions for Mixing.—Dissolve the vanillin, oil of peppermint, and saccharin in the alcohol. Add the tincture of cudbear to the oil and shake thoroughly. Finally unite the two mixtures.

This mixture keeps well, looks nice, is pleasant to take, does not leave a bad after-

taste, requires no urging to get it down, and therefore, for all practical purposes, is a disguised oil.

2. LIQUOR MAGNESIUM SULPHATIS COMPOSITUS.

Magnesii sulphatis, 3xxxij (1000.0);
Tinc. cardamomi comp., f3ij (30.0);
Vanillin, gr. xx (1.5);
Saccharin, 3ij-iv (8 to 16.0);
Alcohol, f3ij (60.0);
Glycerin, f3ij (60.0);
Coffee, roasted and ground, f3ij (60.0);
Aqua, q. s. ad ½ gallon (2000.0).

Directions for Mixing.—Stir the ground coffee in one-half gallon of boiling hot water, and allow it to stand for ten to twenty minutes. While this is still hot add enough of it to the magnesium sulphate to make about three and one-half pints. Dissolve the vanillin in the alcohol, add the glycerin to it, and then the cardamom. When the first solution has cooled somewhat add the second mixture to it. After shaking thoroughly add the saccharin and enough of the coffee infusion to make one-half gallon. Finally filter through a covered filter.

An ounce of this solution contains half an ounce of magnesium sulphate.

This solution keeps well, has a dark, whiskey-like color, a nutty odor, and is easy to take, warm or cold. The writer dilutes it with twice its volume of water at the time of administration.

THE SUCCESSFUL USE OF SOLUTION ADRENALIN CHLORIDE IN A CASE OF PLAGUE AND IN SEVERAL CASES OF ASTHMA.

In the *Indian Medical Gazette* for December, 1904, BAHADURJI recounts his experience with this drug in plague. Recently his attention was drawn to the published report of Dr. K. C. Bose on the successful use of a preparation of suprarenal capsule, the solution adrenalin chloride (P., D. & Co.). Encouraged by the knowledge that it had proved so successful in the hands of Dr. Bose, he tried this preparation in a case of plague recently with astonishing results. A woman, aged twenty-one, came under his care on the second day of fever with tenderness in the right axilla. On examination, infiltration could be felt along the course of the axillary vessels, which developed on the next day into a small bubo. The diagnosis of plague was confirmed by Dr. Nariman, of Parsee Fever Hospital (Special Plague Hospital), and they agreed to put the patient on adrenalin at once. The pulse, which was 132 to 140 and soft and irregular, fell after the third dose of solution adrenalin chloride (20 minims for the first

dose and 10 minims subsequently every two hours) to 98, became firm and regular both in rhythm and volume. The temperature, which kept between 103° and 103.5° the first day, was reduced to 102° and 102.8° by 5-grain doses of euriacol carbonate, three hourly at first, and subsequently half doses, till 100° was touched on the fifth day of the disease, when the euriacol was discontinued. The case made an uninterrupted recovery, the temperature touching the normal line on the eighth day. The solution adrenalin was continued in 5-minim doses two hourly until the pulse fell to 82, then 3-minim doses were given four times a day until the twelfth day.

The point of interest is the rapidity with which the solution adrenalin chloride acted on the circulatory apparatus and the consistency and persistence of its action. The preliminary vomiting and diarrhea of the first two days had ceased of their own accord, while the bubo subsided on the tenth day altogether. Glycerin and belladonna in equal parts were applied to the bubo, and poultices every two hours.

In adrenalin we have then a cardiac stimulant and tonic of the best and non-irritant kind, displacing the nauseous and nausea-producing digitalis, and it is well worth trying. Of course, no other cardiac stimulant was administered, not even alcohol in any shape.

The author has found adrenalin, in 5-minim doses thrice daily for periods ranging from one to three months, an excellent agent for the relief of asthma and diminution of the frequency of asthmatic attacks.

ANILINE COLORS AND SALICYLIC ACID IN ARTICLES OF FOOD AND DRINK.

LA WALL in the *American Journal of Pharmacy* for October, 1904, advises the following procedures:

In looking for the presence of aniline colors in articles of food and drink, it will be remembered that the range of colors which it is customary to use is somewhat limited, being confined principally to the reds, yellows, and browns, very few articles of this nature being colored either green or blue.

The first step in the operation of testing for the presence of aniline or coal-tar color is the selection and preparation of some

fat-free woolen goods. For this purpose a good quality of nun's-veiling is obtained and freed from fat by boiling it, first in a five-per-cent solution of sodium hydroxide for a few minutes, and then repeatedly in pure water until the alkali has been entirely removed. This material is then cut into strips of a uniform size (about 1 by 2 inches), and preserved in a wide-mouth, glass-stoppered bottle until it is to be used.

The material to be tested, if a liquid, is to be diluted with an equal volume of water; if it is a solid or a semisolid it is to be dissolved in about four times its weight of water, and the liquid strained to remove particles of fruit pulp or cellular tissue, which would adhere to the wool and interfere with the results. About 100 cubic centimeters (or 4 fluidounces) of the liquid is placed in a beaker, 4 cubic centimeters (or 1 fluidrachm) of diluted hydrochloric acid (10 per cent) is added, a single strip of the woolen goods is immersed in the liquid, and the contents of the beaker are then boiled for five minutes. The cloth is then removed, washed in cold water, and then boiled for five minutes in water which has been very slightly acidulated with hydrochloric acid.

If the coloring matter be of fruit or vegetable origin, the cloth will either be uncolored or will be changed to a very faint pink or brown tint. If coal-tar or aniline colors have been used, the cloth will be dyed a bright pink, red, yellow, or brown, according to the color present. To confirm the results, remove the cloth from the acidulated liquid, wash it well in water, place it in a beaker with a little water, and add a few drops of stronger ammonia water. Vegetable or fruit colors will not dissolve, but will change to a green, purple, or yellow color. Aniline or coal-tar colors will not be changed in color, but will be dissolved, especially when the solution is heated to boiling, after which, upon the removal of the cloth, acidifying as in the original dyeing test, inserting a fresh piece of cloth and boiling as before, the color will again be deposited.

This second dyeing test is considered an absolute proof of the presence of added coloring matter, as no fruit colors have yet been found which will be deposited upon the wool the second time, while aniline colors will always be so deposited.

When cochineal is present a bright color is obtained with the first dyeing which

might be mistaken for an aniline color; but when the ammonia water is added in preparing it for the second dyeing, the red color changes to purple, and the second dyeing comes out practically colorless.

In testing for salicylic acid, the material is to be prepared as in testing for coloring matter, except that it is to be acidulated with sulphuric acid instead of hydrochloric acid. After acidulating, about 50 cubic centimeters (or 2 fluidounces) of the liquid is placed in a tall cylindrical stoppered graduate (a tall cylindrical bottle will answer the purpose) and a layer of ether poured on the top (about one-fourth as much ether as the liquid to be extracted). The contents of the cylinder are then mixed by inverting it a number of times, taking care not to agitate the contents too violently, which would cause the formation of an emulsion.

After complete separation of the ethereal layer has taken place, about 10 cubic centimeters (or 2 fluidrachms) is cautiously removed by careful decantation or the use of a pipette, transferred to a watch-glass, and the ether allowed to evaporate at a low temperature.

If salicylic acid be present in notable quantities the residue upon the watch-glass will be distinctly crystalline; if but small quantities are present, the residue will have the appearance of small oily drops arranged in a circle near the circumference of the watch-glass. The addition of a few drops of water and a drop of a dilute solution of ferric chloride (a dilute solution of ammonio-ferric alum is preferred by some) will develop the characteristic purple color of ferric salicylate, which is positive evidence of the presence of salicylic acid.

If a flesh-colored precipitate is obtained in this test instead of a violet coloration, it is proof of the presence of benzoic acid, the processes for the extraction of these principles being identical.

When the liquid which is to be tested for salicylic acid contains tannin, it will be necessary to change the preliminary manipulation somewhat, as tannin would be extracted by the ether, and thus obscure the ferric salicylate reaction. In cases of this kind the liquid, instead of being acidulated with sulphuric acid at the outset, is treated with solution of lead subacetate, which precipitates tannin, coloring principles, etc. It is then filtered, and sufficient

sulphuric acid is added to the filtrate to precipitate the excess of lead and render it slightly acid. After filtering out the insoluble lead sulphate the liquid is treated according to the foregoing directions.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

Medicine for October, 1904, contains an article by ABRAMS on this subject. In emphasizing the value of sunlight he states that Robinson made the following observation: In the Eastern Penitentiary of Pennsylvania the average population has been about 1000. This prison has a separate cell system. Each individual convict, after first entering his cell, practically never leaves it until the end of his sentence, an average period of over $2\frac{1}{2}$ years. The cells for fifty years were very poorly lighted, having only a narrow, slot-like window in the ceiling. The solid doors were kept constantly closed; good, even temperature was maintained, the latter by ventilators at the floors of the cells and the suction-process through the corridor, into which the ventilators opened. Reliable analyses of the air were made, which showed it to be of good quality, and the same in the cells as in the corridor. For over fifty years 60 per cent of deaths occurring were from lung tuberculosis. At the end of that period the light into the corridors was largely increased, the cell windows greatly enlarged, and all cell doors kept constantly open. All tuberculous, markedly anemic, and strumous convicts were given one hour's daily sun-bath in the large open yards between the corridors. For the ten years following this change the deaths from pulmonary tuberculosis were reduced to less than one-third of the previous record, and the total deaths from all causes to less than one-half.

Food.—An abundant dietary is, next to fresh air, an important factor in the treatment of phthisis; in fact, it is problematic whether, without continuous exposure to fresh air, patients could be induced to take the large quantities of food ingested. If a healthy stomach is one of the best guarantees against consumption, it is also one of the chief aids in restoring the diseased lung.

In the author's experience, one of the

best prognostic factors of phthisis is a stomach capable of digesting food. No matter how auspicious the symptoms otherwise, a rebellious stomach is always a bad omen. Good assimilation is proved by gains of weight. The food must be varied, appetizing, and suited to individual taste. The meals must be frequent, and taken systematically. The digestive powers of consumptives are greater than the appetite indicates, and to them the phrase "l'appetit vient en mangeant" is applicable. The appetite is further guided by the suggestion of the physician. The author frequently tells his patients that if they do not live to eat, they must eat to live, and that food must be ingested like so much medicine. Fats must be consumed in comparatively large quantities, notably butter, which is the most digestible of all fats, and can be taken with eggs and bread to the extent of 100 grammes a day. Milk must not constitute the entire diet, inasmuch as the consumption of three liters per diem represents only 1800 calories, and such a quantity of milk would force an inordinate burden on the digestive apparatus and would interfere with the ingestion of other food products.

Kumiss, which is regarded in Russia as a specific aliment in phthisis, may often be substituted for milk. As substitutes for fat lipanin and Kraft chocolate may be employed. The former is a more agreeable substitute for cod-liver oil. Concentrated albuminoid products like somatose and plasmon may be used.

The feeding system, as embodied in the Weir Mitchell method for the treatment of hysteria, has furnished the author with the best results in phthisis. This means, of course, absolute rest in bed, with massage, electricity, and copious feeding. In one of his phthisical patients a gain of seven pounds in one week was achieved by this method. The question of exercise is an important one. This should be regulated to the requirements of the patient. The writer's invariable custom, and he believes it to be a thoroughly conservative one, is to sacrifice exercise for the development of fat and muscle. Until his patients show an increase in weight, no exercise is permitted beyond the massage and faradization that constitute the essentials of a rest cure. After the weight is found to be increased, and then only, his patients are

allowed to do a moderate amount of walking, but never enough to cause the least degree of fatigue. Most phthisiologists concur in the rule that febrile cases should have absolute outdoor rest, and the non-febrile patients such graded exercise as does not cause fever, loss of weight, or fatigue.

ETHYL CHLORIDE AS A GENERAL ANESTHETIC.

CRAIG reaches the following conclusions in *American Medicine* of October 1, 1904:

1. The use of ethyl chloride for purposes of general anesthesia has passed the experimental stage.

2. The position of the drug, so far as danger is concerned, has not as yet been definitely determined, though taking all available statistics into account, it can be reasonably assumed that it is safer than chloroform, probably safer than ether. The future will, no doubt, accord it a place somewhere between ether and nitrous oxide gas.

3. Only the pure preparation of the drug should be used for general narcosis.

4. The best method of administration is some form of the "open" method—either the Ware mask or the ordinary gauze compress, the former requiring a smaller amount of the drug.

5. Its use is especially indicated in young subjects.

6. It is not suited for prolonged operations, and as it does not produce complete muscular relaxation it cannot be especially recommended for the reduction of dislocations, and possibly of fractures, and for the divulsion of the anal sphincter.

7. It is indicated in the various brief surgical procedures occurring in dispensary service of general surgery; in short operative measures in gynecology; in a fairly wide field in obstetric practice; and in much of the operative work of the nose and throat specialist.

TREATMENT OF DIABETES MELLITUS.

To the *Maryland Medical Journal* for October, 1904, FUTCHER contributes a paper in which he emphasizes that we should see that our diabetics are given plenty of fats to eat. Owing to the cutting off of the carbohydrates the great heat-producing constituent of the food is

eliminated. The individual must be provided with sufficient calories (35 for every kilo body weight), and this is best accomplished by giving fats, such as butter, gravies, etc., which have a high caloric value.

No two cases of diabetes mellitus can be treated alike. The obese diabetic of middle and advanced age should, of course, be watched, but the disease in these individuals is practically always of a mild type, and the patients may be allowed fairly liberal quantities of carbohydrates. In any given case one of the factors that must be most carefully observed is the weight of the patient from week to week. Very often a diabetic will put on weight and feel much more comfortable if allowed moderate amounts of carbohydrates, although he is still excreting fair amounts of sugar. Such a patient must be considered doing better than the individual who is on a strict non-carbohydrate diet, and who is not excreting sugar, but who is losing weight.

Of one form of carbohydrates the author makes a few remarks, and that is of potato starch. Mossé in 1902 published a series of interesting papers in the *Revue de Médecine* advocating the use of potatoes in the treatment of diabetes mellitus. As a result of a series of feeding experiments on diabetics he found that the patients could tolerate from two and one-half to three times as much potatoes, weighed raw, as they could of white wheat bread. White bread contains about 55 per cent of starch, whereas potatoes contain only from 16 to 24 per cent. In his experiments usually from 1 to 1½ kilogrammes, or from 2 1/3 to 3 pounds, of potatoes was substituted for every 350 to 500 grammes of bread, and he always found that there was a definite drop in the curve representing the sugar and urine excretion while the individual was on the potato starch. He found also there was always a marked amelioration in the patient's symptoms. Thirst became less marked, neuralgias disappeared, and strength increased. He also found that after the potatoes had been substituted for bread for several days, and then the patient placed on the original amount of bread, the excretion of sugar while on the latter never reached the limit obtained previous to the potato régime. In other

words, a certain tolerance for wheat starch was produced by the potato régime. Potato treatment in a number of cases has been tried at the Johns Hopkins Hospital which can, in a general way, substantiate Mossé's results. It does appear, then, that potato starch is more easily assimilated than bread starch, but in the author's opinion there is decided benefit derived from the administration of potato starch in substitution for wheat starch in the treatment of diabetics. The potatoes are weighed raw and are best prepared by baking.

One other point in the treatment of diabetes the author emphasizes, and that is the necessity, in manifestly severe cases, of having the patient provide a specimen of his urine, if not weekly, at least every two weeks, for the purpose of determining the earliest possible appearance in the urine of the abnormal acid which precedes the development of diabetic coma. This complication is now universally accepted as being due to an acid intoxication. The essential cause is the production in the system of beta-oxybutyric acid, held by most observers to be derived from the breaking down of the tissue albumens, and possibly also the body fats. Magnus Levy supports rather strongly the latter view. Beta-oxybutyric acid in itself is rather difficult to test for, but its derivative products, diacetic acid and acetone, are readily detected in the urine, the former by Gerhard's ferric-chloride test and the latter by the sodium-nitroprussic test. The appearance of the Burgundy-red reaction of diacetic acid should always be considered a danger-signal, and the patient should be started on the alkaline treatment immediately, and by slight changes in the diet the acid will in many instances disappear from the urine. By the early recognition of the appearance of diacetic acid in the urine, which always means that its antecedent, beta-oxybutyric, is also being formed in the system, the development of diabetic coma can be frequently warded off. Once the individual, however, has become deeply comatose the treatment is very unsatisfactory. In the severe cases of diabetes where coma manifestations make their appearance, such as headaches, restlessness, acetone odor to the breath, commencing Küssmaul's "air hunger," and the appearance of large quantities of ace-

tone and diacetic acid in the urine, very active treatment is necessary. The patient should be given very large quantities of sodium bicarbonate by mouth and by rectum. These should be pushed until the urine is alkaline in reaction. We will then be sure that the effect of the beta-oxybutyric acid in the blood has been neutralized. Subcutaneous infusions of normal saline solution may be used, but in the hospital experience of the writer have not given very satisfactory results. Where the coma has become decidedly deep it is necessary to get the alkali into the circulating blood more rapidly than is possible by administering it by mouth or by rectum. This can be accomplished by giving an intravenous injection of a one-per-cent to two-per-cent solution of sodium bicarbonate in normal salt solution, from 500 to 1000 cubic centimeters of the solution being used. The fluid must be allowed to run in very slowly, otherwise the action of the heart may become seriously embarrassed.

THE MEDICAL TREATMENT OF CANCER OF THE STOMACH.

In the *Medical Press* of September 21, 1904, ROBIN in a lecture remarks that we need hardly be told that the curative treatment of cancer has yet to be discovered. Still it is useful that we should be told of the various remedies that have been tried, because even if they do not cure, they are sometimes very useful palliatives and adjuvants. Condurango, for instance, used to be highly thought of, though in reality it is a tonic bitter. It is still given as a tincture or fluid extract. Iodide of sodium, methylene blue, and bichromate of potash, in doses of from a fifth to one grain, conium, tincture of thuja, etc., etc., have all been tried by the author without obtaining any results worth speaking of. He has not experimented with various anticancer sera, but those who have done so do not appear to have much to say in their favor.

Some years ago Fiessinger and Jaboulay claimed to have obtained great benefit from muriate of quinine in the treatment of cancer in general. The treatment is applicable to the treatment of cancer of the stomach, and in the author's hands has certainly appeared to delay the progress of the disease and to mitigate some of the

symptoms. Later on the author will compare the results of this treatment with those of surgical intervention.

Muriate of quinine is administered by the mouth, by the rectum, or hypodermically. The average dose is 16 grains a day. It is best given by the mouth, but sooner or later the stomach becomes intolerant. Per rectum it ultimately excites tenesmus, and subcutaneously it is painful. Consequently, the author's plan has been to alternate the three modes. For eight days he gives twice daily in the epigastric region an injection of, at first, 60 minims, then 120 minims, of a solution of 6 drachms of the salt in 12 drachms of sterilized distilled water. During the next eight days he gives 8 grains of the salt in cachet form, either fasting or a short time before food or milk, and a like quantity in suppository, just before bedtime. Then he returns to the injections, and so on. If intolerance supervenes toward one method of administration the dose is made up by the mode that is still tolerated. In some patients he can give as much as 20 or even 30 grains daily, but this is exceptional.

Muriate of quinine, in the author's opinion, is one of the best palliatives, and under its influence he has often witnessed a remarkable improvement. He reinforces the action of this salt by associating it with other products which appear to him to exert a favorable influence in retarding the evolution of the disease, viz., arrhenal and bromide of gold. Arrhenal in five-per-cent solution is given in 10-drop doses twice daily for five days. Then for another five days he gives a tablespoonful of a solution containing one grain of bromide of gold in 10 ounces of water. Such is the fundamental treatment of carcinoma, a plan which, it is true, gives very modest results, but which will nevertheless bear comparison with those of surgical intervention as usually practiced.

The next important point to consider is that of alimentation. There is a tendency when gastric cancer is diagnosed forthwith to place the patient on milk diet. This is often a mistake. There are cases in which milk diet is appropriate, and others in which it is not. We may put on the strict milk diet patients with gastric intolerance or pyloric obstruction, those who have an insurmountable distaste for food,

and lastly, those who suffer from hematemesis. The quantity must be adapted to the capacity of the particular patient, and every means must be employed to insure its being tolerated.

In deciding the question of what food to give, we must be guided by the state of the intestines. If the intestinal functions are more or less disturbed they will be unable to make up for the inadequacy of gastric digestion, consequently we must discard meat, which excites repulsion, and insist on a vegetable diet, selecting substances rich in nitrogen in order to maintain as far as possible the intake of nitrogenous matter. If, on the other hand, the intestinal functions are in fairly good order we may order a mixed diet adapted to the state of the stomach. Under these conditions, by getting the patient to eat he can be kept going for a tolerably long time. To get him to eat, however, we must give him an appetite, and it is here that we must have recourse to bitters. Among the so-called appetite-givers is the persulphate of soda. It must be given in weak solution (persulphate of soda 30 grains, distilled water 10 fluidounces; a tablespoonful half an hour before lunch and dinner), and stopped as soon as the appetite begins to return; in any case, discontinue it in eight days. Metavanate of soda is another good appetite-restorer (metavanate of soda $\frac{1}{2}$ grain, distilled water 1 pint; dose, one tablespoonful). Failing success, we can try a combination of the tinctures of gentian and quassia with jaborandi and nux vomica. When we have induced the patient to eat we must assist the digestion, the more so since we cannot trust to his unaided powers. Therefore, prescribe hydrochloric acid and digestive ferments—pepsin and malt during the meal, and a keratinized pill of pancreatin after the meal.

Fermentation must be controlled by the administration of fluoride of ammonium (fluoride of ammonium 5 grains, distilled water 12 fluidounces; a tablespoonful with lunch and dinner). When the fermentation causes pain and vomiting give a teaspoonful of the following mixture immediately after eating and another as soon as the pain begins: Subnitrate of bismuth, 1 drachm; carbolic acid, 15 drops; chloroform water, 4 fluidounces. If the pain be very severe we may order occa-

sionally a teaspoonful of the following: Cocaine muriate, 1 grain; codeine, 1 grain; lime water, 5 fluidounces; chloroform water, 1½ ounces. In presence of intense pain apply a blister to the epigastrium and powder the raw surfaces with powdered opium. If the pain be caused by acid fermentation giving rise to pyrosis, prescribe the following powder: Precipitated chalk and hydrated magnesia, ää 1 drachm; soda bicarb., 1½ drachms. Mix and divide into twelve powders, one to be taken as required.

For the vomiting, when persistent, put the patient on a strict milk diet, and before each drink of milk give him four or five drops of the following solution: Picrotoxine, 1 grain; rectified spirit, q. s. to dissolve; hydrochlorate of morphine, 1 grain; neutral sulphate of atropine, 1/5 grain; ergotin Bonjean, 16 minims; cherry laurel water, 180 minims. If nothing whatever can be tolerated, abandon the milk and nourish the patient by rectal enemata. This course is also advisable when there is hematemesis. Among other tonics may be mentioned subcutaneous injections of glycerophosphate of soda in five-grain doses daily for a month.

DISEASES OF THE EAR.

In the *Clinical Journal* of October 19, 1904, GRANT writes on this subject.

With regard to foreign bodies, the author reminds us not to believe in the presence of a foreign body until we have seen it; do not be guided by a probe, because the most fallacious feelings are produced by a probe in the ear. The author has touched thin masses of cerumen on the floor of the meatus, and they have been so hard that he has been almost convinced there was a sequestrum of bone or a stone of some sort inside the meatus. The mistake made with regard to foreign bodies is trying to take them out with forceps; of all instruments at our disposal for the purpose, a forceps is the most certain to fail. There is, it is true, a very fine pair made with detachable blades, which are introduced one above and one below the foreign body, but they do not often act well. When a foreign body is found in a child, the great thing is to give an anesthetic. Of course, many foreign bodies will come out with syringing, but a great many

will not. We must, however, be very careful in trying to remove the foreign body with an instrument, because if we fail to get it out we probably irritate the skin of the external meatus to such an extent that it swells up and makes the subsequent removal infinitely more difficult than it was before. It is to be kept well in mind that the direction of growth of the skin of the membrane and external meatus is outward toward the meatus; just as the nail grows upward, so this skin grows in that direction (little cicatricial points on the membrana tympani have been seen to gradually work their way up on to the roof of the meatus). This has the effect that sometimes a foreign body in the meatus that we have been unable to move has worked out to the orifice.

At the hospital the author has spent a great deal of time and trouble to extract a foreign body, and has told the mother to bring the child again in a week, ordering her to use some lead-water drops. The mother comes back in a week with the foreign body in her hand. When asked how it got out, the answer has been, "Oh, it was just at the opening, and I got it out with a hairpin." The fact is that there is this tendency to spontaneous extrusion, and if a foreign body is not likely to do harm—for instance, a bead or a little pebble—it is better to leave it alone, or at least not to be in too great a hurry to get it out, and allow the inflammation to subside. If you use an instrument for the removal of a foreign body, it should be a very fine one, and used under an anesthetic. The author employs an instrument like an exaggerated crochet-hook with a very sharp point, and it should be put in an angular handle so that we may know which way the point is projecting. Another instrument which has also a very sharp hook serves for this purpose, and for other purposes as well; it can be coaxed beyond the foreign body, turned round, and the foreign body is gently rolled out by means of it.

The author gives in his paper a little hint which we may find very valuable. We all know the extreme difficulty of examining the interior of the ear of an infant or very young child. We must recollect that in the infant the tympanic membrane is more horizontal than it is in the adult, also that there is no osseous

meatus. The rule in examining the ear of a young child is to pull the auricle downward and backward. We all know how anxious we are when a child has the symptoms of meningitis to make out whether these are due to inflammation of the middle ear. We look into the child's ear and see the posterior wall; we may say that it is slightly congested, but we cannot say more than that. We may not realize that instead of pulling the auricle upward and backward, we should pull it downward and backward. We will then be surprised to find how good a view we get of the tympanic membrane—even in a very young infant—if this rule be followed.

EUCALYPTUS OIL IN THE TREATMENT OF TYPHOID FEVER.

HALL in the *Australasian Medical Gazette* of September 25, 1904, strongly urges the use of this drug in enteric fever. He says the eucalyptus oils found generally on the market contain, as their main ingredients, eucalyptol, and the terpenes, which comprise dextro- and lævopinene (the constituents of ordinary turpentine oil), and the sesquiterpine. In some oils the place of eucalyptol is taken by piperitone, the peppermint constituent, and the pinene is replaced by phellandrene. In the investigation which the author has recently carried out as to the bactericidal power of the oils, and their constituents, he proved that the bactericidal power of eucalyptol has been greatly exaggerated—in fact, when pure, its action in this respect is very weak. Piperitone and the terpenes have a much more powerful action as bactericides, while if the oil is to have a particularly powerful bactericidal effect, it must have a sufficiency of ozone, derived from the oxidation of the terpenes. If one is not sure that the brand of oil he is using contains much ozone, this may be made up for by prescribing a little peroxide of hydrogen along with the oil.

The oil which the author has employed for most of his cases has been that of *Eucalyptus Smithii*, which consists mainly of eucalyptol and pinene, and he had it "ozonized" by exposing it to the action of light and air for a month before use. The antiseptic effect was seen in the altered appearance and diminished fœtor of the stools, such as we are accustomed to see

during the administration of other antiseptics.

Action on Temperature.—Numerous experiments have been made by German investigators to demonstrate the reduction of temperature brought about by eucalyptus oil. Siegen took 100 drops of eucalyptol (which as prepared at that time was practically identical with the oil as refined nowadays, and so was far from being pure cineol) in divided doses between 1.45 P.M. and 6 P.M., and found his temperature 0.6° C. below his normal evening temperature. He found that large doses (2 to 4 grammes) of quinine had no such effect on the normal temperature. Schulz found the ozonized oil produced a reduction in the temperature, both normal and febrile, of rabbits.

In the author's cases of typhoid the effect of the oil in the reduction of temperature was surprising. For adults he employed 10-minim doses suspended in mucilage, and given every four hours. Of course, larger doses could be tolerated, but care must then be taken lest acute nephritis be set up by the terpene constituents of the oil. The temperature was taken again half an hour after each dose, so as to ascertain its effect. Besides the general lowering effect on the height of the temperature curve, he found that each individual dose produced an average reduction of about 0.5° F.

If the temperature be taken every ten minutes for an hour after a dose, there will generally be noticed a slight rise at first, followed by a decided fall, sometimes amounting to 1° F., or even more. The reduction in the temperature would seem to be brought about as follows: The heart is stimulated reflexly when the drug enters the circulation. The heart beats more rapidly and strongly, the blood-pressure is raised, and there is a dilatation of the vessels of the skin, causing a flushing such as is seen after a full dose of alcohol or camphor. This access of fever-heated blood to the peripheral vessels causes the initial slight rise of the temperature usually seen. This determination of blood to the skin helps to cool it. But the cooling is mainly due to the gentle perspiration into which the patient almost invariably breaks, and which may continue for more than an hour or two. The hot, dry skin is replaced by a cooler, moist one.

This diaphoretic effect of eucalyptus oil, according to the author, is not found mentioned in any of the text-books. The great advantage of this is that it is a diaphoresis combined with stimulation and free from any depression. It would seem that eucalyptus oil reduces temperature mainly by increasing heat loss.

If the temperature failed to come below 103° F. after each dose, the patient was sponged, but so rarely did this happen that sponging had only to be resorted to about a dozen times in all the author's fourteen cases. The saving of labor that this meant to the nursing staff of the hospital was very great, and only for it an extra nurse would have had to be employed during the typhoid epidemic at Parramatta. The nursing staff of the Parramatta Hospital were very enthusiastic as to the favorable course which these cases generally ran, as their labors were so greatly lightened.

Nervous System.—In very large doses eucalyptus oil acts as a profound depressant to the central nervous system. Binz and his pupils found that many volatile oils, such as oil of valerian, oil of turpentine, oil of eucalyptus, etc., possessed the power of antagonizing the effects of certain convulsants, such as brucine, strychnine, etc., so that a dose otherwise lethal was not able to cause death if one of these oils was injected at the same time. The author found in his cases a very marked absence of delirium, even when such had existed previous to the beginning of the treatment. This result could be attributed to a reduction of the temperature, but probably also to a sedative effect on the central nervous system.

THE TREATMENT OF TUBERCULOUS PLEURAL EFFUSION AND PNEUMOTHORAX.

According to a paper in the *British Medical Journal* of October 15, 1904, OSLER in his discussion of this subject submits this question: "Have we any remedies which directly influence the absorption of a pleural exudate?" The general treatment need not detain us; we are all agreed upon the main points. Perhaps, in passing, the need and the value of hydrotherapy—ice-bag to the chest and spongings—in the cases with protracted and high fever, may be emphasized. By

many the salicylates are believed to lessen the severity of the attack, and to promote the absorption of the fluid. They are given on the ground that a large number of cases are of rheumatic origin. A pleurisy in the course of rheumatic fever, or in a child with one or other manifestation of the rheumatism cycle, may perhaps be helped, more in the reduction of the fever and in the diminution of the pain than by any special influence on the exudate itself. In the tuberculous—that is, in the ordinary cases—the author has long since abandoned their use, not having been able to convince himself that they did any good.

By many the iodide of potassium is used as a routine treatment, when there is any delay in the absorption of the fluid. It is not easy to say whether it is directly helpful. It is rarely used alone, and the rapid disappearance which sometimes takes place may be a natural process, following aspiration. What makes one a bit skeptical is its inefficacy in those very chronic cases in which it may be used for weeks and months without the slightest benefit. Indirect measures—sweating, purging, and the thirst plan—may be necessary in a few cases; not very many, as Delafield's record shows, if early and repeated tapping is practiced. A big blister sometimes stimulates absorption in the chronic cases.

The importance of local and of general measures. Damage to the lung in a tuberculous pleural effusion may result from local conditions favoring the spread of a small latent focus at the apex, or a subpleural nodule from which the acute process has originated. Thickening of the pleura, organization of fibrinous exudate, and proliferative subpleural processes may cause rapid shrinkage of the affected side, with atrophy of muscles and marked restriction of the breathing capacity. Tuberculosis of the lung may follow shortly after an acute pleurisy; more remote serious results are chronic fibroid changes, with or without bronchiectasis. So soon as the fever has fallen in an acute case, systematic pulmonary gymnastics should be started. It is not necessary to wait for the absorption of all the fluid; the exercise may indeed favor the removal. Inhalation of compressed air in the pneumatic cabinet may be used, but the simpler

method of expiratory or inspiratory gymnastics is much more readily carried out in general work. While the patient is still in bed he may forcibly blow water from one Wolff's bottle to another. For many years this plan has been used, particularly in children after empyema, and it is remarkable how rapidly and how completely the affected side of the chest may be restored to the normal. After the patient is up any variety of inspiratory exercise is useful, if persisted in. The chair form employed in Naunyn's clinic is particularly suitable to those tuberculous cases with great thickening of the membrane and shrinkage. The patient sits upright on a chair, grasps strongly with the hand of the sound side the margin or the upper bar, then compresses forcibly by muscular effort and by pressure of the arm the unaffected side of the chest, at the same time making strong inspiratory efforts, which are then directed entirely to the affected side, forcibly expanding it. At first this should be done cautiously, as stretching of adhesions may cause pain, but persisted in it gives excellent results. Later, systematic ordinary breathing exercises should be practiced morning and evening. And lastly, every patient with pleural effusion should be regarded with suspicion, and receive the benefit of the doubt, have an after-treatment designed to reestablish fully the general health. Letulle's figures show how large is the number of persons who recover completely from pleural tuberculosis, and this is encouraging. On the other hand, we must always bear in mind the statistics of the late history of the case, that from 25 to 35 per cent become tuberculous—a percentage which in the future should be greatly reduced.

TREATMENT OF ACTINOMYCOSIS.

The therapeutic indications are twofold. In the first place, surgery can remove mechanically the granulomatous tissue and its contained fungus, and in situations, as in the skin, where this treatment is available, it forms the most rapid means of removing the disease. In 1885 Thomassen reported that iodide of potassium had a curative influence on actinomycosis, and it is not improbable that in the days when the fact that an ulcer was cured by potassium iodide was taken as an indication of

its syphilitic nature many of these cases were diagnosed as syphilitic for that very reason. All cases, however, are not equally amenable to the influence of the iodide, but it seems clear that the earlier the treatment is commenced the more likely is it to prove efficacious. It is, moreover, of great importance that the drug should be given in sufficient doses. The ordinary doses that suffice in tertiary syphilitic manifestations are of very little value in actinomycosis. Most cases show little improvement under any dose less than 20 grains of the salt three times a day, and those that do exhibit amelioration are mostly of very recent origin. In some instances a drachm of the iodide three times a day is required, and French authors advise even larger doses, such as two drachms of potassium iodide three times a day. Such enormous doses are, however, not well borne unless great care is taken to give the salt dissolved in a large quantity of water, so that the solution is sufficiently dilute not to irritate the stomach or the intestine. When we consider, further, the great depression produced by potassium salts we cannot doubt that it would probably be better to substitute the iodide of sodium.—*Lancet*, Oct. 20, 1904.

TREATMENT OF GOITRE WITH IODINE.

Roy gives the following plan in the *Indian Medical Gazette* for October, 1904:

First, in the case of each goitrous patient the author advised him, if possible, to leave the affected circle, and if not, he was advised to take his drinking-water after boiling.

Much good result was obtained with the use internally of any preparation of iodine with thyroid or thymus gland extract.

The author prescribed internally:

Potassii iodidi, grs. v;
Syrupi ferri iodidi, 3ss;
Spiritus ammoniæ aromatici, m. xv;
Liquor. thyroïdii, m. v;
Aquæ, ad 3j.

M. ft. misce. This dose three times a day.

The dose of potassium iodide was raised gradually from 15 grains to one drachm daily, if the patient did not show any distinct signs of improvement in a few weeks. He also prescribed tincture of iodine, 5 to 15 minims, three to four times a day, administered in a capsule, or with

the above mixture, instead of potassium iodide; beginning with the minimum dose and increasing one minim daily till 15 minims were taken.

Externally after the application of biniodide of mercury ointment, which is much in practice in India, for some time the author injected hypodermically tincture of iodine 20 to 30 minims at a time into the gland at an interval of four or five days. But some surgeons inject perchloride of iron or 3 to 5 p. c. solution of carbolic acid in water and glycerin, using from 20 to 30 minims of this solution at a time and injecting once a week, instead of iodine.

The method of hypodermic injection of tincture of iodine into the gland was adopted in about two dozen cases with successful results.

TREATMENT OF HEART COMPLICATIONS IN DIPHTHERIA—A CLINICAL STUDY OF 946 CASES.

WHITE and SMITH in the *Boston Medical and Surgical Journal* of October 20, 1904, advise as follows:

It has been the authors' experience that rest in bed and nursing are most important in the treatment of heart complications, and that drugs play a small part.

Their figures show that the serious complications nearly always develop within three weeks from the onset of the illness, although in rare cases they may appear several days later.

It is usually safe to allow the mild cases to be out of bed at the end of two weeks. The presence of murmurs and a slight degree of irregularity are no contraindications, if the first sound is strong and the heart is not dilated. Many of the cases, severely ill or ill several days without treatment, apparently do well for two weeks or more; the pulse may be a little irregular and rapid, but the condition of the patient causes no anxiety. It is not, however, safe to allow these cases out of bed, even if the pulse is normal in rate and of fair strength. If four or five weeks pass and no serious heart complications arise, the danger from this source is usually over, although death may occur from other late effects of the disease, such as paralysis of respiration and deglutition. Experience has shown that after four or five weeks a patient with well marked

murmurs and irregular pulse, even if rapid, experiences no ill results from being allowed to sit up if the heart is carefully watched.

The authors separately describe the treatment in ordinary cases, in those with persistent rapid pulse, and in those with gallop rhythm. In cases with a murmur and little irregularity the treatment is directed to improving the general condition of the child. The patient is allowed to sit up after two or three weeks of illness, but active exercise is forbidden. Digitalis and alcohol rarely do any good; strychnine is the best drug, and is given in doses of 1/60 of a grain every four hours for a child of five to ten years. In many cases larger doses seem to be useful and produce no unfavorable effects.

Cases with persistently rapid pulse should be kept in bed at least four or five weeks, and then allowed to sit up for short and progressively longer intervals, the heart being carefully watched on each occasion. Frequently, after four or five weeks' rest in bed the heart action is improved by this change. Strychnine seems to be the only drug of any value.

In cases with gallop rhythm absolute rest in bed is necessary, and a liquid diet is given. At the first appearance of vomiting food should be given by rectum and cracked ice given by mouth for thirst. Strychnine in doses of 1/60 to 1/40 of a grain every four hours for children three years and over is given with the best results, although drugs influence this condition but little. If there is vomiting the strychnine should be given subcutaneously. Cocaine in doses of 1/12 of a grain every four to six hours in ice-cold water at times relieves the vomiting; alcoholic drugs, even champagne, are not well borne, and often increase the vomiting. Morphine in doses of 1/16 to 1/8 of a grain, depending on the age, is of value to quiet restlessness. Predigested beef products, if given in small amounts, are often retained when everything else is rejected. Hot applications to the epigastrium sometimes relieve the vomiting and pain. Digitalis is useless and usually increases the vomiting.

Sudden deaths have occurred in the authors' series of cases from asphyxia, but there have been no sudden deaths from heart complications. It has occurred sev-

eral times, however, that patients who have been taken out against advice about the end of the second week have died suddenly during the stage of gallop rhythm when allowed out of bed. For example, a child of three years after three weeks' stay in the hospital was taken home against advice just at the time in the illness when serious heart complications are common. A few days later the child died suddenly while being held up to the window to see some friends. This emphasizes the necessity for absolute rest in bed until all likelihood of the development of gallop rhythm has passed. The rest does not prevent the appearance of the complications, but renders the outlook relatively favorable.

The cases of bradycardia require no special treatment beyond rest in bed and strychnine. Long duration of murmurs and irregularity of the heart indicate the necessity for following cases of diphtheria long after convalescence, to study and prevent possible permanent changes in the heart.

This after-treatment of all except the mild cases consists in watching the effect of mild exercise upon the heart for several months at least, and grading it to meet individual requirements.

PRACTICAL DIPHTHERIA SERUM THERAPY.

All are agreed now that the initial dose of the diphtheria antitoxin must be much larger than was suggested a few years ago. One thousand five hundred antitoxic units was considered a greater dose than was needed in the average case five years ago. The American Pediatric Society's committee limited the first dose, except in large children and severe cases, to 2000 units. Now every one commends 3000 units as the least that should be given, and 5000 units if the case presents any serious feature. Even from this point the standard has an upward rather than a downward tendency: 10,000 units is suggested as not too large in severe laryngeal cases, or at least 5000 units repeated in a few hours.

The question of dosage does not depend so much on the age of the child as on the severity of the symptoms. Even for an infant, if there are threatening symptoms

of extensive nasal or laryngeal involvement, 5000 antitoxic units should be given at once, to be repeated at the end of twelve hours if there is not a prompt abatement of the symptoms. Repetitions of the original dose depend entirely on the effect that is secured. If there is a drop in temperature, relief of breathing, a quieter pulse, and generally a more comfortable condition, especially if the membrane assumes a granular appearance and begins to disintegrate or clear up, the dose need not be repeated. If these favorable changes are not noted, however, delay beyond twelve hours in renewing the attempt to neutralize the diphtheria toxins present in the circulation is of serious significance and means the assumption of an undue responsibility on the part of the physician. If in doubt when there has been but a partial reaction and only a slight remission of symptoms, it is better to be sure than sorry, and repeat the dose.

For the repetition of injections the same rule holds as with regard to the administration of the initial dose. Whenever there is a well grounded suspicion of the presence of diphtheria, especially if it occur in a child not overstrong, or if the symptoms are at all threatening, antitoxin should be administered at once without waiting for the bacteriological diagnosis. Even if the affection proves to be non-diphtheritic, no possible harm can be done, and the contingency of subsequent urticaria cannot be permitted to weigh in the balance against the immense advantage of the early administration of antitoxin in genuine diphtheria. Even in severe streptococcic infections the diphtheria serum will not hamper the natural power of resistance, and while there is no doubt that streptococci may cause serious damage to the kidney, there is practically universal agreement that the serum will not add to the danger of nephritis.

As regards other treatment in addition to antitoxin injections there is some difference of opinion, with the weight of authority in favor of not using local treatment, especially if it tends to lessen the dependence on antitoxin as the mainstay in the disease, or if by mechanically modifying the appearance of the membrane it masks the progress of the case.

As regards general supporting treatment there is no hesitation or disagree-

ment. The resistive vitality must be kept up by means of strychnine or iron, and the appetite must be encouraged in every way. Patients should be tempted at two-hour intervals, when not asleep, to take milk and other easily digestible foods. Plenty of liquid must be given, and this is frequently omitted because of difficulty in swallowing. Neglect of this, however, leaves the system with accumulating toxins when they might be washed out through the kidneys. For similar reasons the emunctories generally should be stimulated.

At the time of the convalescence, however, the use of local applications or sprays of hydrogen dioxide becomes almost imperative. Antitoxin neutralizes directly the toxins of diphtheria, but it is not even in the slightest degree bactericidal. It has no effect upon Klebs-Loeffler bacilli in the tissues or on the mucous membrane. These are usually thrown off during the reaction that follows the release from the burden of toxemia that has been clogging all normal action. Sometimes, however, the organism crippled by diphtheria is not able to do this promptly, and there may be a renewal of the symptoms, or diphtheria bacilli may continue to live in the throat and be a source of danger to others for many weeks. It is in such cases especially where, because of laboratory diphtheria, though there are no clinical symptoms, and with regard to which boards of health very rightly refuse to raise the quarantine, the use of antiseptic sprays is especially valuable.

In general it may be said that under such proper care as has been here outlined, if applied promptly, diphtheria ceases to be the dread affliction that it used to be.—*Medical News*, Oct. 29, 1904.

THE TREATMENT OF PRURITUS ANI.

In the *British Medical Journal* of October 15, 1904, MALCOLM MORRIS states the first principle of local treatment for pruritus ani is to remove any cause of irritation (piles, parasites, discharges, etc.) or skin affection that may be present. The most scrupulous cleanliness must be enjoined. In the folds of skin about the margin of the anus epithelial debris and small portions of fecal matter are apt to lodge. The use of paper in the ordinary

way is quite insufficient to clear away these accumulations. Indeed, Adler holds that the use of harsh paper, especially if printed on, is a cause of pruritus. The recommendation to wash the part with soap and water after every evacuation, which is found in a medical work of considerable authority largely read by the public, is a counsel of perfection which is obviously impossible to carry out unless the patient devotes himself to the care of his anus with the singleness of purpose which a hermit bestows on his soul.

It would be difficult and somewhat expensive to carry about a supply of sponges. Pledgets of cotton-wool dipped in the pan of the water-closet when it has been allowed to refill after emptying do very well. The anal region should also be thoroughly cleansed as part of the routine of the morning tub, and it should also be washed at night with warm water and coal-tar soap. The application of water as hot as it can be borne is one of the most efficacious methods known. The patient should either sit in a hip-bath for five or ten minutes, or should bathe the part with a sponge wrung out of hot water. Oatmeal, bran, borax, or carbonate of soda may with advantage be added to the water. Some patients find that very cold water gives greater relief. In persons who sweat profusely carbolic acid lotion (1 in 60), a saturated solution of boric acid, or permanganate of potash lotion should be used.

After bathing, a soothing or cooling remedy should be applied. The names of substances recommended for the purpose is legion—a sure sign that none is infallible. It is impossible for the most experienced practitioner to tell beforehand what will give relief in the particular case before him. He must, therefore, proceed tentatively, and be prepared, if need be, to run through the whole list of known medicaments till he hits on the one that produces the desired effect. Local remedies for pruritus ani may be classified under three heads—anodyne, antiseptic, and caustic. Without attempting to give an exhaustive list of applications that may be used in the treatment of this troublesome affection, the author rapidly passes in review those on which his own experience has taught him chiefly to rely.

Among anodynes he is disposed to give

the place of honor to cocaine, which in his own practice has been the means of curing many cases that had proved refractory to every other method of treatment. It is most conveniently applied in the form of a suppository containing half a grain of the substance, or of an ointment (4 per cent) with lanovasein or boric-acid ointment as a base. It may also be used in lotions with glycerin. A word of warning must here be uttered as to the danger of allowing the patient the opportunity of using this agent too freely or for too long a time. The substitution of the cocaine habit for pruritus ani would be expelling a devil to bring in a worse one. Menthol has a cooling effect that is very grateful to the patient. It may be combined with cocaine in an ointment, or it may be applied in a solution of 10 grains in 1 ounce of dilute alcohol. It should be borne in mind that the primarily cooling action of menthol is apt to be followed by heat and tingling. An excellent sedative for irritation about the anus is a strong solution of bicarbonate or bisulphate of soda frequently applied in a poultice (Allingham). Carbolic acid often acts like a charm; it may be used either as a watery solution (grain ij to grain vj to ʒj) or a liniment containing 1 part of carbolic acid in 19 of olive oil. Compresses soaked in these applications may be used at such intervals as the patient's sensations may render necessary. Carbolic acid may be combined with cocaine either in an ointment or a lotion, or with mercury in an ointment. The following formulæ have proved useful in the author's hands:

Acid. carbolicæ, min. xx;
Cocainæ hydrochlorat., gr. x;
Vaselin, ʒj.

Fiat ung.

Acid. carbol., ʒss;
Cocainæ, ʒss;
Aq. laurocerasi, ʒj;
Aq. rosæ, ʒiij;

Fiat lotio.

Acid. carbol., ʒss;
Hydrarg. perchloridi, gr. ij;
Ol. olivæ, ʒij;
Ung. zinci oxid. benzoat., q. s. ad ʒj.

Fiat unguent.

Tarry preparations are useful. The *sapo carbonis detergens* may be used for ablutions; the *lotio picis carbonis* may be employed in calamine lotion as a vehicle (ʒij of the former to ʒviiij of the latter).

Tar, combined with bismuth, may also be applied in the form of an ointment, composed as follows:

Ung. picis liquidæ, ʒj;
Bismuth subnitrat., gr. xx;
Adipis, ad ʒj.

Fiat unguent.

Compresses soaked in oil of cade are often very useful. Peruvian balsam in vaselin is a good application. A suppository of extract of belladonna ($\frac{1}{2}$ grain) at bedtime will often prevent the nocturnal exacerbation. Painting the part with lead in spirit and water is a soothing remedy. Nitrate of silver in sweet spirits of niter (gr. iij to ʒj) is often useful. Among other sedative remedies which may be tried are menthol, ichthyol, chloral hydrate, borax, benzoin, and tincture of iodine.

When piles are the cause of the trouble, the *unguentum gallæ* will often relieve the itching as well; painting or injecting with *hamamelis* is also useful for the same purpose. Oxide of zinc is best applied in the form of a cream, as follows:

Zinci oxid., ʒij;
Lanolini, ʒij;
Ol. olivæ, ʒss;
Aquæ calcis, ʒss.

Chloroform ointment is recommended by Ball.

Among antiseptics, the most useful is mercury. A very convenient form is the oleate, which may advantageously be combined with oleate of morphine. An ointment composed of calomel ʒss to an ounce of vaselin is also serviceable. Black wash is particularly useful; it may be used either alone or in a vehicle of mucilage or tragacanth, as follows:

Lotio nigræ,
Liquor calcis, aa ʒiv.

Another useful mercurial lotion is the following:

Hydrarg. perchloridi, gr. ij;
Glycerini, ʒss;
Aquæ chloroformi, ad ʒviiij.

Ammoniated mercury in benzoated lard (gr. xx ad ʒj) is also valuable. Calomel in powder may render excellent service.

An American physician, Dr. S. D. Johns, has had excellent results from the local application of calomel. The patient is directed to wash the anus after every movement of the bowels, and, after drying the part with absorbent cotton or soft linen, apply about 20 grains of calomel

with the fingers. Dr. Johns says he has never failed to cure a case with this treatment. He cured one man who told him he had been afflicted for forty years. He supplements the local treatment with small doses of Epsom salts. The calomel stops the itching at once, and the patient is well in a couple of weeks. Orthoform powder is a useful application.

Of caustics, nitrate of silver is the most generally useful. It may be applied in solution 3ss to ʒj of spiritus ætheris nitrosi. The actual cautery may sometimes be applied with great advantage. Sir W. Mitchell Banks says he has used it in several cases. The patient is anesthetized and the affected surface lightly run over with the big bulb of a thermocautery, heated to a white heat, so as to produce a superficial burn. The operation is followed by the application of a lotion of carbonate of soda. Deep cauterization is not required, only "a superficial fizzling." If there is much thickened skin it should be burnt or cut away. Hyperesthetic spots or nodules should be destroyed with the galvano-cautery or excised. If there is spasmodic tightness of the sphincter, these measures may be usefully supplemented by stretching the muscular ring or by forcible dilatation of the orifice. Continuous pressure on the sides of the anal passage may be kept up by wearing an ivory or bone plug provided with a shield to prevent it slipping into the bowel. This appliance often makes life tolerable to elderly people. The passage of a cold rectal sound once or twice a day has been recommended.

THE TREATMENT OF HEMOPHILIA.

GRANT records an interesting case of hemophilia, with some observations on a new method of treatment. The case is that of a boy, aged eight years, a member of a family of known hemophilic heredity, who suffered from dangerous hemorrhage after a severe cut on the plantar surface of the right foot produced by stepping on a piece of glass. Treatment by the ordinary methods was tried and failed, for by the third day oozing from the wound was still in progress, extravasation occurred into the surrounding tissues, and the wound itself showed signs of sepsis. Impressed by the rarity of the disease in females, the idea occurred to Dr. Grant of trying in-

ternal administration of ovarian extract in the hope that it might be of service, on the principle that the ovaries undoubtedly exert a profound influence on the adult female, possibly through an internal secretion, and that this influence may be the factor concerned in the prevention of the disease in women. Accordingly he gave ovarian extract prepared from the ovaries of sheep in two-and-a-half-grain doses three times daily, beginning on the third day, from which time the boy's condition improved, and after a somewhat protracted course the wound healed.

Dr. Grant's discussion of his case and the part played by the ovarian extract is sound. He does not claim for his observation more than a hope that the extract was of use in the successful termination, but the sequence of improvement after its employment is sufficiently marked to justify him in publishing his case so that further observations may be made by others. The treatment of cases of hemophilia is of necessity largely an empirical one, since so little is known of the pathogeny of the disease. No constant changes have been observed in the vascular system or in the blood, save that the coagulability of the latter is generally admitted to be diminished. Various observations have been made from time to time in cases of this disease of thinness of the walls of the vessels or other histological change, but they have not been confirmed by other observers, and it is of interest to note that in the treatment of the disease the ordinary local methods adopted for the arrest of hemorrhage seem by themselves often to fail, as in the present case, while arrest follows the internal administration of certain drugs. Arsenic, dilute sulphuric acid in small doses, and calcium chloride have all been credited with beneficial effects in the arrest of the hemorrhage in hemophilia, both spontaneous and accidental, and in some cases subcutaneous injections of gelatin have been tried with apparently good results. The calcium chloride treatment is the one which perhaps rests upon the surest basis, since several years ago Dr. A. E. Wright showed that its internal administration produced a diminution of the coagulation time of the blood in cases of hemophilia to as much as a half, and in the *Lancet* so long ago as 1897 a note was published drawing atten-

tion to this fact and to its application in the treatment of this disease.

Dr. Grant's observation is not the first application of opotherapy to the treatment of hemophilia, since suprarenal extract is frequently made use of, and cases have been recorded in which the internal administration of thyroid extract has apparently been directly beneficial. Jones records a case of a young girl with frequently recurring hemorrhages from the stomach and intestine, together with changes in the joints like those of hemophilia, which were arrested after the administration of thyroid extract, and quotes an observation of Delace to the same effect. We can congratulate Dr. Grant on the careful way in which he has observed and discussed his case, and on his ingenious idea of the use of ovarian extract, and can only reëcho his hope that the treatment may be found to be of service in other cases.—*Lancet*, Nov. 5, 1904.

CHLORIDE OF ETHYL NARCOSIS.

GAUDIANA (*Riforma Médica*, Jan. 29, 1904) has administered chloride of ethyl as a general anesthetic in more than 200 cases, and as the result of his experience he says that the chief advantage is the rapidity with which anesthesia may be induced—for example, twenty-five to ninety seconds. Alcoholics sometimes resist a little longer. In only one case did the author fail altogether to induce anesthesia, and that was in the case of a robust young man suffering from a deep-seated lumbar abscess. Narcosis is peaceful and quiet, and as a rule devoid of unpleasant accidents. But occasionally a temporary paralysis of respiration was noted, and that in cases where every other anesthetic would have been contraindicated. It was used in albuminurics, cardiacs, cases of bronchitis, etc., without any bad effect. The awakening is rapid and complete. If given on an empty stomach vomiting never occurred, or hardly ever, but if food had been taken recently vomiting was the rule; continued vomiting was only noticed twice. Chloroform or ether narcosis can easily be given subsequently. The chief disadvantage is the uncertainty, and sometimes the impossibility, of producing muscular relaxation, hence it is very unsuitable for abdominal operations. Analgesia occurs readily and rapidly, but muscular

relaxation requires much larger doses, and when accomplished is very uncertain in its duration, so that sudden rigidity may occur just when it is least expected and least desired. In the author's opinion chloride of ethyl ought not to be used for abdominal operations, and it is obviously unsuitable for long operations. Chloride of ethyl is much safer than bromide of ethyl, but neither is a suitable anesthetic for alcoholics. Up to now twenty-four deaths have been recorded under bromide of ethyl. The author discusses and discounts the deaths which have been put down to chloride of ethyl.—*British Medical Journal*, Oct. 29, 1904.

THE TREATMENT OF BRONCHOPNEUMONIA.

STANLEY gives the following advice in the *Birmingham Medical Review* for October, 1904:

The child must be in bed. To say this may seem unnecessary to many people; but in view of the fact that many of these cases are taken to the doctor or the hospital, or are allowed to run about the house, it is essential to make the rule that the treatment must include keeping the child in bed. Further, in the lower orders, there is a tendency to allow children to remain up, at the same time piling on a multitude of garments. The writer regards this as most dangerous. The respiratory movements are impeded. There is then greater liability for the lung tissue to be involved in the inflammatory process. Further, it is easier to control the temperature of the surrounding air and to prevent sudden changes if the patient be kept in bed. The garments should be loose and warm, but light. The room should be airy, if possible sunny, and its temperature 65° F. The following may be given every four hours:

℞ Vin. ipecac., min. v-x;
Spirit. ammon. aromat., min. v;
Syr. tolu., min. v;
Aquæ, ad q. s. f3ij.

It is important to get the bowels to act freely, and the best results are obtained by giving calomel (grs. j to ij), followed by some phosphate of soda or a teaspoonful of senna syrup. The diet, if the child is very young, should be milk, diluted with barley water, or, better still, Vichy water.

In the case of a child two and a half to three years old, boiled bread and milk and similar food may be given. In the course of two to three days the child's condition improves, it appears more placid, and usually shows some interest in its surroundings. After three to four days the following may be given in place of the ipecac and ammonia mixture:

℞ Vin. ipecac., min. iij;
Syr. glycerophosphatis, ℥j.
To be given thrice daily.

In cases of medium severity, with temperature 102° to 103° F., marked increase in the respirations and obvious nasal expansion, and where the physical signs indicate irregular consolidation, the treatment must be more energetic than that just described.

In addition to keeping the child in bed, a pneumonia jacket should be applied. Calomel may be administered as before. Twenty minims of ipecacuanha wine should be given every seven to ten minutes for three or four doses (or, in the case of the patient being over four years, thirty minims). Should the patient vomit before the exhibition of the last dose, it is unnecessary to continue it. Ten to twenty grains of ipecacuanha powder may be given instead in syrup of orange. The treatment thus begun is continued by giving the following:

℞ Vin. ipecac., min. v-x;
Sp. ammon. aromat., min. x;
Tinc. seneg., min. x;
Syr. toltan., min. xv;
Aqua, ad q. s. ℥ij.

To be given every four hours.

Spt. ætheris nitrosi (min. x) may be added with advantage if the bronchial element in the breath sounds is marked. The diet must be milk, with some alkali, Vichy, or Apollinaris water.

In twenty-four to thirty-six hours there is usually a decided improvement in the general symptoms, and in forty-eight hours the physical signs often show a change for the better.

If in thirty-six hours there is no indication of improvement, if the temperature remains about the same average level, an alkaline spray (e.g., warm solution of sodii bicarbonatis) may be used, and a small amount of creosote (min. j) added to each dose of the mixture. These cases yield, as a rule, to this treatment, if given time and attention to details.

The cases most difficult to treat and which give rise to anxiety are those of the third degree. There is a higher and more irregular temperature, and a cyanotic tinge of the lips. There is usually sweating and restlessness. The treatment of such cases is medicinally similar to the last. It is well to use a spray early in the case, and it may even be necessary to put up a tent bed and use a steam kettle. If so, eucalyptus or pine oil may be added to the steam. The rapid extension of pulmonary collapse in these cases is one of their most serious features. Therefore, every effort must be made to maintain both the general and respiratory vigor of the patient, especially as it so often happens that these severe cases of bronchopneumonia occur in weakly children. It is therefore well to give a small dose of strychnine and Hoffmann's anodyne (min. xv), with a mixture similar to the above. In cases of such severity small doses of alcohol (pure brandy min. xv) may be added to the milk, and given every two hours.

In severe cases it may be necessary to cold pack the patient. The indications for this are increasing cyanosis, dyspnea, with continuous high temperature. Judgment is very necessary in these cases, for if the patient is in an enfeebled condition, the process may be followed by general collapse. As a matter of fact, partial application of cold is usually all that is necessary, and the author has had satisfactory results from cold affusion to the chest and face. The respiratory mechanism is considerably stimulated, and sufficient heat is abstracted to bring the temperature down two or three degrees, while there is not so great a risk of bringing about collapse. Even with this modified method it is sometimes well to seat the child in a bath of hot water up to the waist.

INTRAVENOUS INJECTION OF SALICYLATES.

In the administration of many drugs it is known that more excellent results can be obtained when intravenous or subcutaneous injection is practiced than when the drug is given by the mouth. Certain drugs, too, lose some of their power when absorbed through the stomach, so that, if a full effect is to be gained, some other

method of administration must be practiced. This seems to be the case with the salicyl compounds, and for some time various physicians have been in the habit of injecting salicylate of sodium hypodermically with better result than is obtained by the usual method of administration. More recently intravenous injection has been recommended, and has been practiced with success by Mendel and others. He usually gives four-grain doses, repeating them at intervals of from twelve hours to three days. In no case were any ill effects noticed. In the technique of injection the same precautions are necessary as in intravenous injection for any other purpose. The vein should be fully dilated before inserting the needle, and care should be taken that the needle really pierces the vein. In repeating the process a different vein should be selected. The method of treatment seems to have a wide application, not only in acute rheumatism, for rapid relief has been given in such conditions as lumbago, and the flying pains to which rheumatic patients are so subject in damp weather.—*Medical Press and Circular*, Nov. 2, 1904.

TAPPING OF THE LUMBAR REGION.

The *Medical Press and Circular* of November 2, 1904, contains a lecture by MILIAU upon this subject. He tells us that to puncture the lumbar space a long and strong platinum needle is used. The pointed extremity is beveled, while the other is formed so as to adapt itself to a Pravaz syringe. The patient being seated, the body bent forward, and the arms well in front, after having traced with great care the line joining the two iliac crests and disinfected the region so as to render it completely aseptic, the operator introduces the needle on this line to the right of the vertebral column, and about half an inch of a vertical line drawn between the spinous apophyses. The needle is directed forward and a little inward; it passes through successively the skin, subcutaneous cellular tissue, lumbar aponeurosis, and the sacrolumbar muscles. It passes between the two vertebræ, perforates the yellow ligament, and after piercing the membranes it penetrates the cul-de-sac. Immediately drops of a more or less limpid liquid issue from the free extremity

of the needle. Such is in all simplicity the operation of tapping the cephalorachidian liquid.

As a Therapeutic Means.—When Quincke devised the lumbar puncture, his idea was to act against affections producing a hypersecretion of the cephalorachidian liquid and an excess of pressure in the cerebrospinal arachnoid cavity. He practiced numerous punctures, and others followed his example, but the results have been so contradictory that it is impossible to say if the operation can be considered as capable of rendering real service. We have got no farther than that. In congenital hydrocephalus the lumbar puncture has replaced that of the lateral ventricles. Repeated tapplings, withdrawing from an ounce to two ounces of the liquid, have been practiced. Generally the immediate result is very good, the convulsions disappear, the limbs recover their movements, the sight is improved as well as the psychic functions. But this improvement does not continue; the patient gradually relapses into his former condition. Quincke and Stadelman have concluded that the operation has little or no effect on the disease. In certain subjects affected with cerebral tumors it frequently happens that hypersecretion of the cephalorachidian liquid produces compression on the brain and the medulla, provoking headache, optic neuritis, stupor, and epileptiform convulsions. Lumbar puncture has relieved some of these symptoms and might be tried.

In all the varieties of meningitis the operation has been tried in a systematic manner. According to Abadie it gives excellent results in that variety which Quincke mentioned under the name of simple serous meningitis. In several cases of syphilitic meningitis it relieved the first symptoms, giving time for the specific treatment to act. But in tuberculous meningitis the results are very contradictory—*nil* in some cases, transitory in others, while in a few they were very encouraging. The headache, which is a very distressing symptom, generally yields to the operation, and for this reason one would be justified in having recourse to it.

Acute uremia has been also treated by the lumbar puncture. Two typical cases of Dr. MacVail have been already published. Two patients suffering from the

convulsive and comatose form of uremia in the course of Bright's disease were cured by the operation. These patients had been already treated by injections of pilocarpine and applications of hot air, but without success. An ounce of the cephalorachidian liquid was drawn off, and under the influence of this intervention the coma yielded, the patients recovered consciousness, and the convulsive seizures ceased. On the other hand, the edema gradually disappeared and the albumin diminished, while the quantity of urine increased.

But lumbar puncture is not only employed to evacuate simply a certain quantity of cephalorachidian liquid, it is utilized also to introduce therapeutic agents into the subarachnoid spaces, especially since Sicard proved that absorption by this means was superior to the subcutaneous method. In patients affected with tetanus this author injected antitetanic serum, and gave chloride of sodium to a man suffering from general paralysis, and bromide of potassium to epileptics. Injections of cocaine beneath the arachnoid membrane to produce anesthesia were devised by Bier and popularized by Tuffier. Many surgeons tried this method, but with different results, and finally, through grave accidents, it was abandoned.

THE RED LIGHT TREATMENT OF SMALLPOX.

While on his death-bed FINSSEN prepared the following statement to support his favorite plan of treatment in this disease:

It is well known that the red light treatment of smallpox is based on the fact that the smallpox infection puts the skin in a state of great sensibility to light, which also, we know, in normal circumstances may act on the skin as an irritant. It is no unique phenomenon. The same thing is, for instance, known from the buckwheat disease in cattle. Furthermore, the recent researches on the phenomena of fluorescence and sensibilization seem to supply important contributions to the explanation of this remarkable fact. In smallpox the infection, as is well known, produces a more or less strong exanthem all over the body. If now the patient during the period of the appearance and

the growth of the exanthem is protected against daylight—especially against the chemical rays—by means of a red light treatment, the exanthem will be less strong than otherwise, and as a rule no suppuration will occur. If, on the contrary, the patient is allowed to remain lying in bright daylight suppuration will often occur, light acting as “a plus” which increases the already existing inflammation of the skin. It is impossible, of course, to give any absolute rule, as there are many degrees of smallpox exanthemata. In many cases no suppuration occurs, although light is not shut out.

It will thus be seen that the shutting out of light acts differently in different cases according to the extension and force of the exanthem. Now, experience shows that if a patient is placed in red light or in darkness immediately after the first appearance of the exanthem no suppuration will, as a rule, occur, even in unvaccinated cases or in cases with confluent exanthem. But if the patient is put under treatment later the result will be more doubtful. It will depend, of course, on the strength of the exanthem and on the length of time light has been allowed to exercise its irritating action. Experience shows further that even a relatively short exposure to light, especially if the exanthem is fully developed, suffices for the production of suppuration. Pursuant to these facts the following two conditions are indispensable in order to obtain good results from the red light treatment: (1) an early treatment of the patient, and (2) an entire exclusion of hurtful rays of light. With regard to the time when the treatment should begin Finszen wrote as follows in 1895: “When the patient comes under treatment early enough—before the fourth or fifth day of the disease—suppuration of the vesicles will be avoided;” and, “Should the patient come under treatment after the fifth day of the disease, it is uncertain whether the suppuration can be avoided: sometimes this is the case, sometimes not.”

This statement is sufficiently clear. But what do we see when examining Dr. Ricketts and Dr. Byles's thirteen patients? According to the table given by them their patients have come under treatment at the following periods: One patient on the fourth day of the disease, seven on the fifth day, three on the sixth day, and two

on the seventh day. Moreover, the majority of the thirteen cases mentioned were severe and serious ones, all of which, no doubt, should have been placed under treatment on the fourth day. So it is evidently no wonder if Dr. Ricketts and Dr. Byles have had none but bad results from the treatment. Nothing else could be expected, and the author therefore protests against their attributing to their tests any general importance for the appreciation of the method, and against their conclusion that the method is ineffective and that the great number of medical men of all countries who have obtained good results are mistaken. Though for the sake of the cause the author feels obliged to protest against their conclusion, he does not want in any way to disparage their researches, for it appears that they unfortunately have started from wrong premises. In fact, they say somewhere in their paper: "Dr. Finsen claims that suppuration is prevented if the treatment is begun before suppuration is imminent. This condition was fulfilled in all our cases." Dr. Finsen's exposition as given above shows that he could not possibly have said so, as such a statement is entirely inconsistent with the theory of the method. This misunderstanding also appears elsewhere in the following statement: "There remain thirteen cases in which the patient was treated in red light throughout the period of suppuration." It will be seen from the author's exposition that in order to be of any use the treatment must, on the contrary, be carried out before the period of suppuration.—*Lancet*, Nov. 5, 1904.

ON THE SERUM THERAPEUTICS OF CASES OF SNAKE-BITE.

In a paper in the *Lancet* of November 5, 1904, by LAMB, the following conclusions may be drawn:

1. Antivenomous sera are markedly if not absolutely specific, even between the venoms of species of the same genus. Hence in any case of snake-bite the serum prepared with the venom of that species which has inflicted the bite must always be used.

2. The difficulties in collecting the poisons of the different species of snakes in sufficient quantity for the purposes of immunization are apparently very great.

3. Up to the present the only sera which have been used practically are the one prepared by Calmette and the one prepared with pure cobra venom. Both these sera are practically specific for cobra venom.

4. As the neutralizing power of these two sera is not great, and as a cobra can inject a large amount of venom, the serum must be given in large quantity; as much as from 300 to 400 cubic centimeters, even when given intravenously, would be necessary in some cases. If given subcutaneously from 10 to 20 times this amount would be required. It should therefore always be given intravenously.

5. Experiments on dogs and the records of cases of cobra-bite in man bear out these calculations.

6. It is evident from the above considerations that it is a question whether the advantages to be gained by the serum treatment of cases of snake-bite are at all commensurate with the cost entailed in the preparation of the sera.

THE DIFFICULTIES AND DANGERS OF ACCOUCHEMENT FORCE.

WETHERILL in the *Journal of the American Medical Association* of November 5, 1904, gives the following advice as to technique:

The method submitted for consideration, subsequent trial, and approval may not be universally applicable, but it is sure to be found adaptable to a large proportion of the cases in which accouchement force is necessary.

In case the supravaginal cervix has not dilated and the external os is still rigid, it will be necessary to employ some instrument as a pilot for the Sims speculum used as a dilator. For this purpose, if time and the nature of the case permit, the gauze packing or hydrostatic bag is preferred; but if not, the Wathen or Starling type of metallic dilators is better.

The cervix being dilated to the diameter of the smallest Sims speculum or retractor available, the farther dilatation is readily, safely, and rapidly completed with these instruments. For this operation the patient is fully anesthetized and drawn well down over the edge of the table, in the lithotomy position.

The author employs Sims's specula of

varying widths and lengths, with flat, shallow blades, the smallest a half-inch and the largest two inches broad, and from three to four inches in length. With the exception of the narrowest one they are regular stock instruments. Sometimes he has employed for the upper lip of the cervix a long, narrow Eastman or Jackson retractor. Two stout double tenaculum forceps that will not lacerate and tear out of the cervical tissue are also necessary.

The *modus operandi* is as follows: The cervix is caught on either side in its upper outer quadrant with the tenaculum forceps, which are then handed to an assistant. The narrow speculum or retractor, as the case may be, is then slipped into the cervical canal between the tenaculum forceps, and with it the anterior lip of the cervix is drawn forward and upward under the symphysis pubis and held there by a second assistant. Now a Sims speculum with the broadest blade that can be introduced is crowded into the cervical canal, and with it the posterior lip of the cervix is drawn steadily downward and backward, the anterior lip being held forward and upward. Then the operator, grasping the lower end and shaft of the posterior speculum with both hands, presses firmly and steadily downward and backward, and rocks the instrument from side to side. In this way he gently but surely and quickly irons out, dilates, and paralyzes the cervix under the guidance of his hand and eye, and uses as much or as little force as may be actually required. He need not lacerate or damage the tissues if he proceeds with ordinary care; and in case he should do so he at once knows the extent of the injury.

After both specula are well placed inside the cervix the point of the blade of the upper one should be raised and the point of the lower one depressed to prevent them from slipping out, and the tenaculum forceps must now be removed. The diverging blades of the specula within the cervix will serve to hold it well down in the pelvis, and the strongly held upper one must allow plenty of room for the lower to be moved from side to side through the cervix and over the perineum, which is undergoing dilatation at the same time.

As dilatation progresses, rock the posterior blade well up on the sides of the

cervix, and have the position of the anterior blade slightly changed to better oppose the force exerted by the posterior. Thus the force is applied always from the center toward the circumference, and at a right angle to the axis of the circular muscular fibers of the cervix, while the rocking motion of the broad blade distributes it to advantage.

If there be much hemorrhage the cervix may be tamponed between the blades, or constant irrigation may be employed during the operation.

Technically the method is ideal, but there may be cases to which it cannot be applied during the first stage of dilatation. The author's obstetric practice is limited, and he has not had opportunities for trying the method fully under all conditions; but in the cases in which it has been employed it has worked admirably, and with such facility, safety, and speed as to form a delightful contrast to all former methods.

The plan has to commend it the use of only such instruments as may be found in the armamentarium of every physician—uncomplicated instruments, too, and capable of absolute sterilization by boiling. Best of all, they are instruments with broad, smooth bearings for contact with the tissues, which are consequently not exposed to lacerations and abrasions through their use.

TREATMENT OF ACUTE AND CHRONIC NEPHRITIS, WITH SOME REMARKS CONCERNING THE EDEBOHLS OPERATION.

ATKINSON reaches the following conclusions in the *Maryland Medical Journal* for November, 1904:

1. So far as the results show, Edebohls's operation is applicable in only a very limited number of cases of medical nephritis.

2. In chronic interstitial nephritis, in late or contracted forms of parenchymatous and diffuse nephritis, the results do not warrant operative procedures.

3. Edebohls's theory of revascularization of kidney substance by decapsulation has not been proven.

4. The best results have been obtained in movable kidney with albumin and casts.

5. Benefit and actual cure have been obtained in acute and early stages of chronic

parenchymatous nephritis, where pain is present and suppression of urine threatens the life of the patient.

ENDOTRACHEAL MEDICATION.

In the *Medical News* of November 5, 1904, RICHARDSON states that we have in intratracheal injections a valuable method of treating many of the inflammatory and infective diseases of the lower respiratory tract. Those who do not employ it are depriving themselves of a most effective means of medication. It is simple, safe, and practical. Diseases below the larynx, owing to the prevailing opinion of their inaccessibility and sensitiveness to local treatment, have been treated mostly by internal medication. Sprays and vapors have been used to a considerable degree and can be made to penetrate quite deeply, but the quantity of the drugs reaching the parts is so small that as a rule little real benefit results. We all favor the local treatment of diseases of the nose, pharynx, and larynx, and it is only rational that similar changes taking place in more remote parts should not be treated along the same lines and with equally satisfactory results. It is entirely practicable to medicate the whole bronchial area and reach portions of the lung by absorption through the pulmonary lymphatics.

The first impression naturally is that violent coughing would be produced, but this is erroneous. Indeed, it usually produces no more disturbance than an ordinary application to the nasopharynx or larynx. The usual objections urged against it are groundless. Some claim that it possesses no therapeutic value, others that serious interference to the function of respiration may result, that it produces nervous shocks, spasm of the glottis, etc.

The technique of the injection is simple. The patient should be seated in front of the operator, the light placed along the side of the head, the mouth held wide open, the tongue protruded and held firmly by the patient. With a frontal mirror the light is focused on the pharynx, and a laryngoscope placed in the illuminated zone, which gives the image of the epiglottis and glottis. The cannula of the syringe is then directed over the epiglottis, and during an inspiration, by making a

sort of see-saw motion of the syringe from below upward, it is made to penetrate between the vocal cords and pass the first rings of the trachea. The syringe is then relieved of its contents, while the patient inhales slowly and deeply. This is the all-important point to be observed in making successful injections. Only rarely is severe coughing produced, and when it does occur it is often due to the unskilful introduction of the fluid.

In hypersensitive throats it is frequently necessary for the first few treatments to use a two-per-cent solution of cocaine as a spray to overcome the pharyngolaryngeal reflex. There are patients who can be successfully injected by simply depressing the tongue and guiding the syringe directly over the tip of the epiglottis into the larynx and trachea. The author has practiced this method frequently in cases where the pharyngeal reflex was not hypersensitive, with just as satisfactory results as where the mirror was employed. He has had no experience in treating children by this method.

The success in making the injections will depend in no small measure on the selection of the syringe. The one which the author has found most satisfactory, and the only one, is Shradel's, manufactured by Tiemann & Co., of New York. It consists of a glass barrel enclosed in metal and having a spring attached to the piston. When the syringe is filled with the liquid for injection, it is relieved of its contents by gentle pressure with the index-finger on a small spring, that allows the liquid to flow out quickly, or slowly, according to the will of the operator. The cannula is about eight inches in length, and is of the proper curvature for its introduction and passage through the larynx.

The selection of the medicaments for injection is of paramount importance. In general they should be antiseptic, stimulating, non-irritating, and soluble in the vehicle employed. In the early days of intratracheal medication watery and mucilaginous solutions were used, but they proved too irritating. Within recent years oily solutions have been employed, with results that warrant their continuance. The therapeutic agents the author has used mostly have been the volatile essential oils eucalyptus and thyme, com-

bined with menthol, camphor, creosote, iodoform or orthoform, according to the indications of the case, with sterilized olive oil as a vehicle. By the use of the oils in this way we get a double action. They are absorbed and then reeliminated by the pulmonary mucosa—thus insuring modification of the whole subglottic breathing tract.

Various experiments have been conducted on human beings and inferior animals, demonstrating the rapid absorptive and eliminating function of the bronchial mucous membrane. The injections should be given daily, and one or two drachms of the liquid may be injected at a time. The author frequently gives two or three injections at one sitting. A great factor in favor of this treatment is that it does not disturb digestion or interfere in any way with other treatment which it may be desirable to carry out in conjunction with it. The diseases treated have been bronchitis, bronchial asthma, tracheitis, bronchiectasis, and pulmonary tuberculosis. Its greatest field of usefulness is in the treatment of bronchitis. The mixture which has proven the most beneficial in this class of cases is five per cent camphor-menthol with eucalyptus and thyme and sterilized olive oil, or a highly refined bland petroleum. In the acute congestive stage it produces coughing, but as a rule it lasts only a few minutes, and the soothing effect which follows is very grateful to the patient. A few injections will frequently entirely relieve the cough and expectoration.

FORMALIN-GELATIN.

A solution of gelatin when combined with formalin forms a firm, insoluble, and elastic jelly. By adding from 1 to 2 per cent of formalin to a 15- to 20-per-cent solution of gelatin, which has been liquefied by the application of heat, a preparation is obtained which, when painted at once over a moist surface, will adhere firmly to it, forming a tenacious, elastic, and insoluble skin, admirably adapted to the arrest of hemorrhagic oozing. WRIGHT (*Lancet*, July 9, 1904) has employed it for this purpose with very good results, painting it upon the gums in a case of hemophilia where bleeding had persisted for weeks in spite of the local application of adrenalin chloride and ferric chloride.

The formalin-gelatin proves most useful as a protective skin to denuded surfaces. It is not removed by ordinary washing.

In the author's experiments pyogenic microorganisms (*staphylococci*) have been rapidly devitalized when imprisoned under a skin of formalin-gelatin. Painted upon the skin it furnishes an aseptic surface through which to carry an incision. Formalin-gelatin may prove useful in sealing up operation wounds, especially those of mucous surfaces.

When employing the formalin-gelatin upon a denuded surface, pain is avoided by applying first a film of simple gelatin and coating this over, when dry, with the formalin-gelatin. When proceeding thus, a tube of sterilized gelatin is melted in hot water and applied to the wound with a brush. This done, a volume of formalin equivalent to a twentieth of the bulk is added to the remaining fluid gelatin. The two-per-cent formaldehyde-gelatin thus formed must be applied before it has time to set.

IODISM—CAUSE AND PREVENTION.

LESSER (quoted in the *Interstate Medical Journal*, July, 1904) has proven experimentally that the iodides never enter the body nor circulate in it as albuminous iodine compounds, but always as an alkaline iodide. Even if the drug is given as an iodine-albuminate, it is converted into an inorganic body before being absorbed. Free iodine has never been found in the body. The proper term, therefore, would be not iodism, but iodidism.

The action of iodipin (an oily iodine compound) is peculiar. While it never produces iodism when administered hypodermically, it will do so quite as readily as potassium iodide when given by the mouth. In both cases the entire dose of iodipin is converted into sodium iodide. While iodipin when given by the mouth is absorbed rapidly, iodine appearing in the urine a few minutes after its administration, the reverse is true when iodipin is given hypodermically. In the latter case the iodipin is deposited at the point of injection, and is absorbed very slowly and gradually. If, for instance, 20 cubic centimeters of iodipin are injected daily for ten days sodium iodide may be demonstrated in the blood and in all the tissues for over half a year.

These considerations, as well as his extensive clinical observations, lead the writer to believe that iodism results neither directly from the total amount of iodine administered nor from the duration of the treatment, but solely from the sudden flooding of the organism, especially the mucous membranes, with iodides rapidly absorbed. Accordingly, when giving iodides the aim should be to obtain slow and protracted absorption of the drug. This may be effected (1) by administering the iodide in a mucilaginous vehicle. (2) By dividing the daily quantity into a large number of small doses given at short intervals. The therapeutic effect of the drug is not at all diminished by giving it in small, frequent doses, and a moderate idiosyncrasy can thus be combated. (3) By giving the drug per rectum. The author uses Zeissl's formula, consisting of 2 grammes sodium iodide, 30 grammes of water, and 5 drops tr. opii. (4) By means of hypodermic injections of iodipin. By this means a patient with an idiosyncrasy against iodides shortly becomes accustomed to small amounts of the drug, and finally larger doses may be administered by the mouth.

A THIRD URETER.

HOHMEIER (quoted in *Medical News*, July 16, 1904) reports an interesting case of a third ureter which opened directly into the vagina of a girl fifteen years of age.

Earlier in life the complete hymen caused a retention of urine in the vagina, with subsequent formation of a large phosphatic calculus. This was removed, but the incontinence still continued. The ureter then was implanted into the bladder through a deep perineal incision. The patient made an uneventful recovery. The absence of any obstetrical or operative scars simplified the vaginal operation.

SUPPURATING BUBOES TREATED BY INCISION, EXPRESSION, AND IMMEDIATE SUTURE.

LEGRAIN (*Annales des Maladies des Organes Génito-Urinaires*, May 15, 1904) employs successfully the following rapid method in the treatment of suppurating buboes: Under ethyl chloride anesthesia an incision is made over the long axis of

the bubo down to the focus of suppuration. The bubo and the surrounding tissues are then squeezed until all the pus is expelled and the liquid which flows out consists of blood only. The cavity is sponged out with a cotton compress moistened with sterile water. After careful closure of the incision, without drainage, by means of horsehair, or catgut sutures, a collodion dressing and compress are applied.

GONORRHEAL PHLEBITIS.

HELLER (*Berliner klinische Wochenschrift*, June 6, 1904) has collected statistics on 26 cases of gonorrheal phlebitis. Of these, 20 occurred in men and 6 in women. One doubtful case occurred at the age of thirty-four, and the remainder during the third decade of life.

With but one exception the phlebitis developed during the course of a first attack of gonorrhea. It has been observed as early as fourteen days and as late as three months after the initial infection (the average for 15 cases being thirty-two days). Other complications did not occur in a few cases, but were noted in great variety in the majority of instances.

Prostatitis and violent urethrocystitis occurred in one case; epididymitis in six; pleurisy, prostatitis, and pyelitis in one; erythema nodosum in one; and gonorrheal arthritis in fifteen. Only one of the patients had antecedent varicose veins.

The phlebitis involved the common iliac vein in one case, the internal iliac in one, the femoral in six, the popliteal in one, the deep veins of the leg in one, the internal saphenous in sixteen, superficial veins of the abdominal parietes in three, veins of the vagina in one, dorsalis penis in one, veins of the corpora cavernosa in three, pampiniform plexus in one, veins of the prostate and bladder in two, of the upper arm in four, and of the forearm in one. The affected veins were about evenly divided on the two sides of the body. Generally the affection was limited to the branches of one venous system, but in six cases two or more widely separated veins were involved in the same patient.

Gonorrheal phlebitis usually begins with acute pain, and is followed by firm swelling over the seat of inflammation, and doughy edema over the distal distribution of the affected vein. In a few

cases the edema was so marked as to mask the diagnosis. Fever was present in ten cases, in four of which it rose above 40° C. Two of the patients had chills. After a few days the swelling subsides, and the vein can be felt as a hard, tender, indurated cord. Pigmentation, discoloration, ecchymoses, and even gangrene of the skin may follow inflammation of the superficial veins.

Restitutio ad integrum within a period varying from a few days to six weeks was the termination of 62 per cent of the cases. In a few instances the vein was obliterated permanently. One case required amputation at the thigh; one died of pulmonary embolism and another of sepsis.

The phlebitis may be caused by the gonococcus alone, but in the more virulent cases there is probably a mixed infection. The treatment of these cases does not differ from that employed in phlebitis due to other causes.

RETROVERSION OF THE GRAVID UTERUS.

HERMAN (quoted in the *American Journal of the Medical Sciences*, July, 1904) reports 79 cases of retroversion of the pregnant uterus treated at the London Hospital between 1885 and 1893.

Spontaneous ascent of the womb occurred in 40 cases, when the patient was kept recumbent and the bladder empty. In 33 cases the uterus was replaced manually; 2 cases aborted after the uterus had been replaced; 2 died from toxemia; in one case a water-bag was used to replace the uterus, with doubtful benefit.

At St. Bartholomew's Hospital from 1881 to 1892 there were treated 42 cases, in 25 of which the uterus was replaced easily after emptying the bladder. In 2 cases attempts at manual reposition failed, but after repeated catheterization the uterus resumed a normal position spontaneously. In 2 cases abortion was induced, and in 3 it occurred spontaneously. Two died from lesions of the bladder and kidney, induced by retention of urine. There were 5 abortions in a total of 115 cases—about one-fourth of the usual frequency.

The gravest danger from retroversion of the gravid uterus results from the retention of urine. The essential treatment is frequent use of the catheter. Manipu-

lation with the finger in the rectum is a most efficient method for pushing the uterus up into its normal position. The author has never seen a case of retroversion of a gravid uterus where the womb could not be replaced, nor any occasion to resort to abdominal section.

DIET AFTER GASTROINTESTINAL OPERATIONS.

The most frequent cause of death within the first few days after a gastric or intestinal operation is general exhaustion. Only a relatively small percentage of cases die from peritonitis, vicious circle, or secondary hemorrhage. Death from general exhaustion is usually due to starvation, and ERLICH (*Münchener medizinische Wochenschrift*, No. 14, 1904) thinks that this can be avoided by judicious feeding, instituted immediately after operation.

He proceeds in the following manner as soon as the ether nausea subsides: On the day of the operation the patient is given tea, red wine, and thin soup. At noon and evening, on the day after the operation, in spite of nausea or vomiting, calf's brain cooked in bouillon is administered. If the vomiting becomes serious gavage is employed. On the second day the patient is given minced boiled veal, or the white meat of boiled pigeons or chickens; on the third day, minced boiled beef, purée of potatoes, and cakes; on the fourth day, rare minced ham, softened zwieback, and soft-boiled eggs; on the fifth day, wheat bread and spinach. From the fifth day on red meats are also given; from the seventh day they are no longer minced, and from this time the patient is given a still more liberal diet.

By this régime, after the third day the patient no longer presents the appearance of having undergone a severe operation.

Bowel movements are regulated by enemata. During the operation particular attention is paid to obtaining a perfect suture.

During the last year the writer has performed excision in three cases of gastric cancer; gastroenterostomy in three cases of inoperable cancer of the stomach; four gastroenterostomies for benign conditions; and two intestinal resections for gangrenous hernia. Of the twelve patients who were fed by this plan, one died

of peritonitis, one of vicious circle, and one of angina Ludovici of unknown origin; but none died of exhaustion.

PRIMARY TUBERCULOSIS OF THE BREAST.

Bartsch has reported 65 authentic cases of tuberculosis of the breast, in 30 of which the disease was primary in that part. To this number ANSPACH (*American Journal of the Medical Sciences*, July, 1904) has added 12 cases of primary mammary tuberculosis.

Two of the above cases occurred in males. Of the 40 females, 28 were married; 19 had borne children; 12 had a hereditary taint; 6 had a history of trauma; 8 had mastitis during lactation; 2 were infected by direct inoculation. The youngest patient was fifteen and the oldest sixty-nine years of age. No case has been observed in a female before the age of puberty, but Demme reports a case, due to direct inoculation, in a male child four years old.

There was no direct connection between the disease and lactation, although 47.5 per cent of the women had borne children.

Tuberculosis of the breast may occur in a confluent or a disseminated form.

The confluent form may be an instance of mixed infection, or of the true tuberculous abscess. The confluent abscess with a mixed infection is the usual variety. It may involve the entire breast. It breaks down, forms fistulæ, and in the later stages produces retraction of the nipple. Local signs of inflammation are present, and the axillary glands may be involved secondarily.

Cold abscess is quite rare. It forms an elastic, fluctuating tumor, mostly well circumscribed and sharply defined. It is rarely surrounded by infiltration; fistulæ do not form, and the skin remains unbroken.

In the disseminated form the axillary glands are not involved; small nodules of tubercular disease are scattered throughout the breast. There is only slight enlargement of the gland; the skin remains unaltered; and the progress of the disease is extremely slow. This variety is extremely rare.

The prognosis of tuberculosis of the breast in itself is favorable, but the prognosis as to the life of the patient is

dependent upon the existence of visceral complications.

In the writer's series of 12 cases, 3 were not heard from after operation; 4 were reported cured within one year; 1 died at the end of three years; and 4 were known to be well for periods varying from two to eight years after operation.

Although simple evacuation or curettage of the enlarged nodules alone has sufficed in some cases, the gravity of the disease demands removal of the breast and of the enlarged glands.

INDUCED LABOR WITH REFERENCE TO THE PERMANENT RESULTS FOR THE CHILD.

LOREY (quoted in the *American Journal of the Medical Sciences*, July, 1904) reports 100 cases of induced labor. The most frequent indication was contraction of the pelvis. Of the 100 children, 74 were born living; of these 19 per cent died during the first ten days of life. Of 56 children whose subsequent history is known, 75.1 per cent survived the first year. Of 51 illegitimate children 78.5 per cent lived during the first year. The 100 operations were performed upon 83 women, 88 per cent of whom recovered without fever. One patient died of septic infection.

Pregnancy was interrupted in 37 cases on account of maternal disease. Fourteen of the patients had eclampsia, 6 nephritis, 3 cardiac disease, 6 placenta previa, 4 obstinate dyspnea, 1 goitre, 2 polyhydramnios, 1 carcinoma, and 1 cystitis induced by pressure of the head upon the urethra.

The mortality among these children was 36.1 per cent, and 70 per cent of the remainder died during the first year of life. Only 15.8 per cent of the children survived the first year.

The induction of premature labor is indicated in cases of contracted pelvis, where the anteroposterior diameter is 7 centimeters or less. With an internal anteroposterior diameter of 8 to 10 centimeters, the induction of labor before the thirty-sixth week is indicated when there exists a marked disproportion in the size of the pelvis. The safest method of inducing labor is by means of bougies or elastic dilators. In cases of extensive traumatism to the genital tract, the pro-

phylactic injection of antistreptococcic serum is recommended. In serious maternal disease labor should not be induced in the interests of the child.

HEMORRHOIDS TREATED BY TINCTURE OF HORSE-CHESTNUT.

DE VENÉY (*American Journal of the Medical Sciences*, July, 1904) recommends tincture of horse-chestnut in all forms of hemorrhoids. Pain subsides after the first few doses, but the remedy must be continued to secure permanent results. According to the severity of the symptoms, the dose is from 10 to 30 drops in water, twice daily before meals.

In case of mucoid dysenteric stools, the tincture of horse-chestnut should be combined with an equal quantity of tincture of aloes, or a pill of one-tenth grain of silver nitrate may be given night and morning. For patients with intestinal atony and constipation, tincture of nuxvomica is a valuable adjuvant.

The drug may be used locally in ointment form, but is not as efficacious as when given internally. The tincture of horse-chestnut is also beneficial in varices of the legs and in congestive disorders, such as prostatitis, proctitis, and uterine congestion.

ENURESIS IN CHILDREN.

LEWIS (quoted in the *American Journal of the Medical Sciences*, August, 1904) gives a plan of successful treatment of enuresis in children. Most of the subjects are unhealthy in aspect, of irregular habit in regard to their diet, and live mainly upon farinaceous and saccharine foods; they are difficult to arouse from sleep, and even if taken up at night quickly relapse into a kind of stupor on being returned to bed. These children have nocturnal polyuria, passing urine which is of low specific gravity, of neutral or alkaline reaction, and presents a deposit of triple phosphates or oxalates. The bladder is probably not emptied until it is full, and on account of the unirritating urine the "call" to the central nervous system is sufficient only to start the necessary reflex for emptying the bladder, but not enough to waken the patient.

This condition is analogous to the polyuria of infants fed upon starchy foods,

whose symptoms rapidly disappear under a proper change of diet. So in the older children, with both polyuria and enuresis, a marked improvement is noticed after the introduction of a rigid antidiabetic diet. As most of the cases are much depressed in health, a general tonic treatment is recommended at the same time. Without any other treatment rapid improvement and cure have resulted in many cases, both in private and hospital practice.

THE TECHNIQUE OF NERVE SUTURE.

In performing nerve suture it is desirable to provide some form of tubular envelope at the point of union, in order to prevent adhesions around the nerve, and at the same time to conduct the newly formed nerve fibers in the direction in which they should go.

FORAMITTI (*Archiv für klinische Chirurgie*, Bd. 73, Heft 3) has accomplished this experimentally by employing a section from an artery. The sciatic nerve in a dog was divided and united by paraneural sutures of catgut, and the point of anastomosis was protected by a fresh section of a femoral artery, taken from the same dog. The wound healed by first intention. At the end of three weeks the function of the nerve was reestablished. At this time the point of anastomosis was exposed and found free of adhesions. Microscopically it was found that the artery had retained all its structural characteristics, and was only lightly adherent to the nerve sheath.

In another animal the blood-vessel was prepared before use by drawing it over a glass tube, hardening it in a 5-per-cent formalin solution for forty-eight hours, washing it in running water for twenty-four hours, and boiling it for twenty minutes. The final result was the same as in the preceding case. In another dog, 2.5 centimeters of the nerve was resected, the ends reunited by splicing, and covered with one of the hardened arteries. The wound united *per primam*. After six weeks the nerve united with the arterial tube, and the latter remained non-adherent to the surrounding tissues.

The best method of drawing the arterial tube over the nerve is by means of a catgut suture passed through one end of the divided nerve and then carried through the lumen of the tube. The same

suture can be employed to unite the two ends of the nerve, after which the tube is pushed down over the point of the anastomosis.

For use in emergency work the writer takes arteries and veins of different sizes from a recently killed calf, stretches them over glass rods, hardens them in a 5- to 10-per-cent solution of formalin for twenty-four hours, washes them in running water for twenty-nine hours, boils them for twenty minutes, and stores them in 95-per-cent alcohol.

ADRENALIN IN GASTROINTESTINAL HEMORRHAGE.

SCHLESINGER (*American Journal of the Medical Sciences*, July, 1904) has treated with success two cases of gastrointestinal hemorrhage by the internal administration of adrenalin.

The first patient was a hemophiliac with severe internal hemorrhage. Six minims of a 1:1000 solution given every hour caused a cessation of the bleeding. In twenty-four hours the patient took 7 drachms of the solution. After further administration of the adrenalin, in conjunction with gelatin, a drop of blood obtained by puncture coagulated immediately.

The second patient had essential purpura with bleeding from various mucous membranes, including that of the stomach. The hemorrhage was stopped by the internal administration of adrenalin.

The author has employed the drug in various other forms of alimentary hemorrhage with invariable success. Hemoptysis is not influenced by this treatment. The internal administration of adrenalin has no effect upon blood-pressure.

ADRENALIN IN OCULAR THERAPEUTICS.

DARIER (quoted in the *American Journal of the Medical Sciences*, August, 1904) has found that as a means of diagnosis of beginning iritis adrenalin is very useful when there is hesitancy in instilling atropine. By means of it episcleritis may be differentiated easily from pustule of the limbus, and certain doubtful forms of conjunctivitis may be recognized as granular. From a therapeutic point of view adrenalin exaggerates the action upon the

eye of various alkaloids; cocaine anesthetizes an inflamed eye without otherwise affecting the organ if adrenalin has been applied first. Combined with it cocaine will render great service in conjunctivitis, and lessen the pain of topical applications as well. It makes catheterization of the tear-duct unnecessary, for a simple injection does away with the stenotic action of the mucous membrane. When eserine or atropine fails in its usual action upon the pupil, a combination with adrenalin obviates the difficulty. It facilitates operations upon the conjunctiva because of the ischemia it produces, but after iridectomy its employment may be followed by hemorrhage into the anterior chamber. In corneal lesions, such as ulcerations, it should not be used, but in episcleritis it produces excellent results.

ADRENALIN IN GLAUCOMA.

GRANDCLEMENT (quoted in the *American Journal of the Medical Sciences*, August, 1904) reports an instance of severe and marked glaucoma cured by adrenalin. The treatment consisted in the instillation into the affected eye every half-hour for three consecutive days of a 1:5000 solution of adrenalin. The course and outcome of this case encourage the belief that it may be possible to cure the various forms of glaucoma by this simple means, doing away with the difficult and painful operation of iridectomy. Two points must be carefully noticed in employing this strong and dangerous vasoconstrictor: (1) The adrenalin should be instilled sufficiently long to stop momentarily the secretion of the intra-ocular fluids and to cause a perceptible diminution of the tension. (2) The production of a dangerous and irremediable hypertension should be avoided most carefully.

CHRONIC INTERNAL HYDROCEPHALUS TREATED BY AUTODRAINAGE.

Congenital hydrocephalus usually proves fatal shortly after birth. Acquired hydrocephalus appears several months after birth and progresses rapidly or slowly, steadily or intermittently, or, in a small number of cases, may come to a permanent standstill. There is no spontaneous retrogression.

According to TAYLOR (*American Journal of the Medical Sciences*, August, 1904) a method of drainage to be successful must be internal, must be slow, and must be prolonged or permanent. A small, permanent fistula between the ventricles and the subdural space most closely resembles normal conditions, and in the hope of attaining that end the author operated upon six cases, under general anesthesia, as follows:

An osteoplastic flap about two inches in diameter is turned down, with its hinge over the base of the mastoid and just above the level of the horizontal lateral sinus.

In the lower part of the dura mater thus exposed, a semicircular flap, base downward and about one inch in diameter, is made. Frequently there are one or two distended veins beneath this dural flap, and they should not be damaged, for their walls are so friable that neither clamp nor ligature is of much use, and the bleeding is annoying.

The brain immediately protrudes through this dural window. A slender aspirating needle is passed through the second temporo-sphenoidal convolution (which is the one protruding), inward and slightly upward until it enters the ventricle, when the clear fluid spurts out and is collected in a sterile tube for bacteriological examination. Only a very small amount should be allowed to escape in this way.

The thickness of the brain tissue is measured by observing the length of needle inserted when the fluid begins to escape.

The drain is now made of No. 2 forty-day chromic catgut. Three loops (six strands), about an inch and three-quarters longer than the thickness of the brain, are bound together by a loose spiral of catgut, starting at one end and stopping so as to leave an inch and a quarter of the loops free. In other words, the drain consists of a shaft of six strands of catgut a half-inch longer than the brain thickness, and, spreading from its base, three free loops of gut an inch and a quarter long. Around the shaft of the drain, but not covering its tip, are rolled three layers of cargile membrane. With a long, narrow-bladed thumb forceps the tip of the drain is seized and carried into the ventricle along the tract made by the aspirating needle. The

tip projects about one-half inch into the ventricle. The free loops of gut are slipped under the dura between it and the brain surface, in different directions, but chiefly downward toward the great lymph spaces at the base of the brain. A sheet of cargile membrane is slipped between the dura and the catgut loops to prevent adhesions. Usually by this time so much ventricular fluid has escaped that the brain no longer protrudes through the dural window.

The dura is sutured with catgut, the bone-flap is held in place by three or four chromic catgut sutures, the deeper soft tissues by catgut, and finally the skin with silk. A good-sized sterile dressing is applied with some pressure.

By this method the body of the ventricle is tapped, and the escaping fluid is conducted into close proximity to the great lymph spaces and venous sinuses at the base of the brain. The right side of the brain is chosen for the operation because it does not interfere with Broca's speech center, and if any paralysis results from irritation of the motor centers, it is less disastrous if the left side of the body is affected.

The forty-day chromic catgut was used as a drain with the hope that before it was dissolved a chronic fistulous communication would have formed between the ventricle and subdural space.

The cargile membrane was wrapped about the shaft of the drain to prevent the soft brain tissue from being crowded in between the strands of the drain, and so preventing the escape of the ventricular contents. It was also hoped that it would form a facing to the punctured tract and so facilitate the formation of a chronic fistula.

The free loops of catgut coming from the shaft of the drain were pushed between the dura and the brain to lead the escaping fluid beyond the area where adhesions would be apt to form between the brain surface and dural flap.

During the closure of the wound the ventricular fluid escapes rather freely. The first dressing is applied firmly with adhesive plaster to limit the external drainage, but in spite of this the dressing is well moistened during the first twenty-four hours. After that there is no further external escape of ventricular fluid.

Of the six cases, one died sixty hours

after the operation, and undoubtedly as the result of it; one apparently had reacted from the operation by the fourth day, then developed otitis media, which was drained satisfactorily, then finally anuria and death on the sixth day; one died suddenly on the sixth day, while apparently slowly recovering from the sharp reaction of the first three days; one died at the end of two months of gastrointestinal disturbances; and two are living eleven and twenty months respectively since operation. In the latter two signs of intracranial pressure are still absent; one is much benefited both mentally and physically, and the other has been considerably improved mentally, but its feeble body still remains unable to support or move its enormous head.

STATIC FOOT ERROR.

The 1000 cases of faulty static conditions of the foot reported by BLODGETT (*Journal of the American Medical Association*, Aug. 20, 1904) were about two-fifths of the total orthopedic cases seen in the same period. Two-thirds of the patients were under forty years of age; 426 were men and 574 were women. In 85 the condition was caused by trauma; in 38 by some form of arthritis; in 22 by excessive or sudden increment of weight; 22 from illness just preceding onset of symptoms; 12 postpartum; and 6 congenital.

The predisposing causes were: (1) *Local*: long, slender foot; hallux valgus. (2) *General*: mild, fleeting polyarthritic symptoms, probably toxemic; depression of physical vigor, without local symptoms, except in feet, as shown in soft muscles, pale skin and mucous membranes, excessive complaining without effort at self-help, and general indolence of mind and body. In many cases no satisfactory cause was found, although trauma was the commonest direct cause.

In about two-thirds of the cases both feet gave symptoms, though not often beginning at the same time; the remainder were equally divided between the left and the right. It was not rare to find the symptomless foot in objectively the worse position. In slightly less than half the cases the duration of symptoms before coming under observation was six months or less—often entirely disproportionate to the duration of the deformity.

In over 95 per cent of the cases pain was the leading symptom, and in more than two-thirds of these the pain was in the feet and ankles only. Of 36 painless cases, 19, or more than half, were under twenty years, although of the whole 1000 only one-sixth were under this age. The pain in the foot was often variable and diffuse, so that the patient could not refer it to any exact site, but when localized was most frequently referred to the astragaloscaphoid joint. Pain above the ankle, in addition to pain in the foot, was noted in the calf (including front of the tibia) 147 times; in the knee 73 times; 32 times in the back; and 14 times in the hip. Of 21 cases of static foot trouble, without subjective foot symptoms, 13, or more than half, had pain only in the knee, usually over the internal condyle, and 4 others had pain in the knee associated with pain elsewhere above the ankle. In these cases the examination of the knee was negative, except perhaps for slight hyperemia of the joint membranes. Prompt improvement of the knee followed correction of the foot.

Much the commonest type of this condition, occurring oftenest in massive feet of full-grown adults, was a moderate rotation of the subastragaloid tarsus about an anteroposterior axis into a valgus position, together with considerable depression of the longitudinal arch during weight-bearing, but without much abduction of the forefoot. Without weight-bearing the longitudinal arch in this type is normal or only slightly flattened, and during weight-bearing the arch is never entirely lost. The foot is relaxed and spread out. The next commonest type, occurring oftenest in slender feet, was moderate valgus, decided abduction of the forefoot, and an arch unusually high even during weight-bearing. The deformity in both these types is pronation. Other types observed were: (1) The thoroughly flat foot, with prominence of the scaphoid; (2) flattening of the arch of relaxed feet in weight-bearing, without commensurate pronation, due apparently to direct depression; (3) pes cavus or the contracted foot, with short tendo Achillis, but no other evidence of paralysis.

In nearly all the cases the anterior arch was involved to some extent; in 156 cases, notably spread and flattened; and in 116 cases, painful. In 68 cases the concur-

rence of spreading and flattening of the anterior arch, distinctive pain at the heads of the metatarsals (almost always centering at the head of the fourth metatarsal), and usually callus under the anterior arch, made the distinct diagnosis of broken anterior arch. Of these cases about three-fifths were women; 10 had had the definitely characteristic, sudden attacks of excruciating metatarsalgia relieved by removing the shoe.

The degree of deformity, whatever its type, was no indication of the severity of symptoms. A few of the cases complaining of pain had feet apparently normal, but were relieved by treatment of the inferred static error.

Of the 77 cases of marked hallux valgus, 18.2 per cent suffered from definitely broken arches, while in the 1000 cases the percentage of broken anterior arches was only 6.8.

There was swelling about the astragaloscaphoid articulation in 58 per cent of the cases; about the external malleolus in 17.9 per cent; about both malleoli in 10.7 per cent; over the dorsum in 7.1 per cent; and swelling which prolonged the heel cushion forward in 5.4 per cent.

Tenderness was noted in 64 per cent at the center of the heel; in 24 per cent over the astragaloscaphoid joint; in 8 per cent in the sole; in 4 per cent in the cushion of the first metatarsophalangeal joint.

In broken anterior arch there was usually tenderness about the head of the fourth metatarsal.

In 88 cases mobility, almost always in inversion, was sufficiently restricted by spasm, adhesions, or adaptive changes in tendons or bones, to require special treatment; of these cases 65.9 per cent were men, contrasted to the 42.6 per cent of male cases in the whole series.

In about one-quarter of the cases there was notable restriction of passive motion; in one-twelfth of the cases, mainly in men, this restriction required special treatment.

In a great majority of the cases (86.7 per cent) a steel sole-plate was advised. The plates were usually of No. 18 gauge steel, spring-tempered, covered with leather on both sides. The prevailing type of plate, chiefly for what has been described as the commonest type of deformity, was the square plate, supporting nearly the whole width of the sole from just anterior to the weight-bearing sur-

face of the heel to the sesamoid bones of the great toe. A posterior outside flange, to keep the foot from slipping off, and a small posterior inside flange were used, but neither side as a whole was rolled up, and the scaphoid and the base of the fifth metatarsal were not enclosed. For broken anterior arches the plate was extended and raised under the heads of the middle metatarsals. Much abduction would be opposed by an anterior outside flange. Flannel bandaging and supporting adhesive strapping were employed when indicated.

Local and general tonic treatment, foot exercises, right shoeing, and correct muscular standing and walking were often recommended. Rigid valgus was treated by adhesive strapping in as much correction as possible, followed by a plate when the foot became sufficiently flexible. Intractable cases were forcibly corrected by manipulation under ether, and retained overcorrected by use of a plaster cast, followed by a plate and usually a Thomas sole. Thomas heels, or heels and soles, were occasionally used in promising cases in substitution for plates. Temporary felt pads and leather felt pads were among the measures employed.

In two-fifths of the plate cases returning for after-treatment the plates were raised, usually within a month. The need for this raising, due to the patient's becoming accustomed to the plate, to plantar molding and atrophy, and to elevation of the arch, was conspicuously shown by the relief it gave from the returning symptoms. A higher plate at onset would, as a rule, apparently not have been tolerated; indeed the same plates which in a few weeks unquestionably required raising the patient at the beginning often could not wear steadily, but on account of the initial height of the plates had to become used to them gradually.

About one-fifth of the plates broke during the first year of use, usually due to constant moisture and resultant rust. This breakage has recently been prevented satisfactorily by galvanizing the plates with omission of the lower leather.

Five hundred and thirteen cases of all kinds of static foot error did not return for after-treatment. About one-quarter of the cases that did not return after the initial treatment are known to have been

entirely relieved, and slightly less than the same number were entirely unrelieved.

Of the cases involving principally the longitudinal arch, one-third were entirely relieved by the use of a plate with accessory and after-treatment. Only one-eighth were unrelieved. This contrasts with one-quarter entirely relieved and one-quarter unrelieved of the patients who received the same initial treatment, but deserted without after-treatment. The importance of after-treatment is further manifested by the improvement in results with the increasing duration of treatment. Thus, about three-fifths of the cases under treatment more than one year were entirely cured, while of those under treatment less than six months, those entirely relieved were only one-quarter.

Of 10 cases with sudden disabling metatarsalgia, 5 did not return after initial treatment. One was entirely relieved by using a plate for eight months; then attacks returned, as the plate needed raising. Two were relieved at the end of a month by strapping of the anterior arch and the use of a plate. Of the two remaining, one continued to have attacks of undiminished severity, but less frequently, and the other was entirely unrelieved.

The results of treatment by Thomas soles without plates were entire relief in 2; relief in 4; slight relief in 1; no relief in 3 cases. This tends to show that even in selected cases it was less effective than plate treatment, to which several of them had to come. Flannel bandaging and alternate hot and cold showering, or felt pad and strapping, were also used, in promising cases of mild static error of the longitudinal arch, to bridge the patient over to physiological recovery, without committing him to the plate habit. In 16 such cases only 4 were unrelieved, but later one came to Thomas soles and 5 to plates.

In three-quarters of the cases with restriction of inversion sufficient to require corrective adhesive strapping, the pain was entirely or much relieved, although the flexibility was much improved in only half of a series of similar cases. The relief of symptoms without restoration of mobility, even with the plate, usually did not continue long after the last strapping.

In two-thirds of the cases of forcible correction under ether the valgus and rigidity, in spite of plaster cast, adhesive

strapping, and plates, returned, although in several cases forcible correction was repeated, and in one case was performed five times, with unpreventable return each time of rigid valgus due to peroneal spasm. In these not uncommon cases of spasm of the peroneals, resection of a short musculotendinous piece of the two muscles recently seems to give satisfactory and permanent results.

Among the 350 plate cases in which results are known, although one-half and more had worn their plates over six months, only 15 removed their plates with relief (6) or entire relief (9). The 95.7 per cent of all of the plate cases in which the results are known continued to wear their plates because they could not do without them. After more than six months on the average, they subjectively needed the plates as much as ever.

RESULTS OF RESECTION FOR TUBERCULOSIS OF THE KNEE-JOINT.

BLAUER (*Beiträge zur klinische Chirurgie*, Bd. xlii, Heft 1, 1904) reports 400 cases of tuberculosis of the knee-joint observed during the last twenty years in Bruns's clinic at Tübingen. The treatment preferred by Bruns is resection, but he tries conservative measures in all cases in which the disease is seen at a very early date, and makes but slow progress, and in the milder cases observed in children during the period of growth.

His conservative method consists in absolute rest for the knee-joint by means of a plaster-of-Paris dressing and repeated injections of iodoform oil into the joint. No improvement after six months of such treatment is considered an indication for operation. A second indication is seen in the cases where the process has partially destroyed the joint apparatus. The fungoid, rapidly progressing type is operated on at once, whether seen early or late.

He has records of only sixteen primary amputations in patients less than fifty years old, and advises resection in all cases where there is the slightest chance of saving the limb. In patients having passed the age of fifty years he always amputates.

His technique consists of a curved incision through the skin and subcutaneous structures only; the quadriceps is severed

close to the patella; the recess beneath it is thoroughly cleaned out; the ligamentum patellæ cut through; the anterior half of the capsular ligament removed from the patella as far back as the lateral ligaments. All tuberculous tissue is excised, and an emulsion of iodoform in 1:1000 sublimate solution is rubbed over the cut surfaces. After inserting drainage the wound is closed and a sterile dressing applied.

The after-treatment consists chiefly in the use of splints, which are changed every eight to ten days, and later the application of a plaster cast, which is continued for nine to twelve months.

Of the 400 patients, 184 developed the disease during the first decade, 140 during the second; 269 were operated upon before they were twenty years old. Two hundred and fifteen (53.75 per cent) were males; 185 (46.25 per cent) females. About 60 per cent of the patients had primary synovial tuberculosis, about 40 per cent primary bony disease. Of the 400 patients, 7 died shortly after operation, but none of them died as the result of operative interference. Secondary amputations were necessary in 17 cases; 16 of these were noted among the first 300 cases. Of the remaining 376, 343 were discharged cured, 29 had fistulæ remaining, and 4 were not cured. Three hundred and eighty-five patients were heard from after periods varying from one to seventeen years since operation; 81 of them were reported dead; 50 of these died without recurrence, 6 with recurrence, 12 after amputations, 7 after the primary operation; and of 6 the final result could not be determined. Of the 304 living patients, 290 were reported cured, 3 not cured, 11 had secondary amputations. Therefore the best of results were obtained in 87.9 per cent of the cases of resection.

Of the 96 patients operated on after the twentieth year, 88 had perfect physiological use of the limb. Many of the children, especially those who were operated on before the thirteenth year, had such deformities as genu varum or valgum after the operation, for which secondary operations were performed in many instances. The average shortening for all the cases was 4.5 centimeters. Of the 81 patients who died, the fatal termination was due to tuberculosis of other parts of the body in 57.

Comparing these results with those of conservative methods (45 per cent cures, 51 per cent failures), Blauel feels that radical treatment for tuberculosis of the knee-joint should be regarded as the normal procedure in adults as well as in children for all the graver cases, and in the milder cases if conservative methods fail after a thorough trial.

TRAUMATIC CHYLOTHORAX.

DIETZE (*Deutsche Zeitschrift für Chirurgie*, June, 1904) has collected nine cases of traumatic chylothorax which followed compression of the chest, or overextension of the spine. In two cases which were complicated by fracture of the vertebræ, the thoracic duct was injured by a bony fragment.

The rapidity with which the effusion of chyle in the pleura develops depends upon the size of the laceration of the thoracic duct. In one case the effusion occurred so slowly that there was spontaneous absorption, while in another instance it had to be removed by aspiration ten times. In one case the chylothorax was bilateral, while in two cases it was on the left side, and in six on the right side. Two cases recovered without special therapy. One died of dyspnea without having been aspirated. In five cases aspiration was demanded by vital indications. Aspiration was employed from one to three times in four cases, and ten times in one case. Thoracotomy was performed in one case after a second aspiration. Four of the cases terminated fatally from suffocation or from excessive loss of chyle.

The writer reports a tenth case, which is the first authentic instance of the thoracic duct having been injured by a bullet or stab wound. The patient, a man of thirty-nine years of age, shot himself just below the cardiac apex in the sixth intercostal space, at a distance of 7 centimeters from the median line. There were no complications during the first forty-eight hours. Dyspneic attacks were noted from the third day. On the sixth day an effusion in the right pleural cavity was demonstrable. This increased up to the tenth day, when 1500 cubic centimeters of bloody chyle was aspirated. Three days later 2350 cubic centimeters was evacuated. During the following seventeen days aspiration was performed six times,

a total of 19,400 cubic centimeters of fluid being removed. Aspiration was again performed after a period of twelve days, making a total of nine punctures in forty-two days. After another interval of nine days the fluid reaccumulated slowly. During the following eight days the effusion remained stationary, but from that time on it decreased, and disappeared during the following fourteen days. The patient was cured.

In the treatment of chylothorax aspiration should not be performed unless the dyspneic symptoms become threatening. The negative pressure which exists in the pleural cavity after aspiration exerts suction of the chyle, and retards closure of the wound in the thoracic duct. In the cases in which the fluid reaccumulates rapidly, resection of a rib with thoracotomy should be performed to prevent negative pressure and favor healing of the duct wound.

PERIGASTRITIS CONSECUTIVE TO GASTRIC ULCER.

DELAY and CAVAILLON (quoted in the *British Medical Journal*, June 18, 1904), basing their conclusions on fourteen cases under Jaboulay, are convinced that the adhesions of perigastritis represent the degree of activity of ulceration in the gastric mucous membrane. When the ulcer begins to heal, the adhesions become absorbed, and the pains disappear. The adhesions rarely play an independent and mechanical part in producing symptoms and complications, as in cases in which a long, tough, fibrous band presses on the stomach, causing acute obstruction, or drags on it, causing pain.

It is the ulcer that must be treated rather than the adhesions; operative indications must be based on pain, vomiting, the general condition of the patient, and, above all, resistance in the epigastrium. The perigastric deposit implies active ulceration, and is a constant menace of perforation and suppuration.

Operative interference must be thorough; mere liberation of the adhesions is inefficient, and may be dangerous. Gastroenterostomy is excellent, and allows the ulcer to heal, but it does not cure. Resection of the ulcer is the ideal operation, and suppresses the cause of the adhesions. It always should be done when the seat

of disease is accessible. When the whole wall of the stomach is involved, the organ being reduced to a rigid tube, total exclusion of the stomach might be practiced with the view to keeping the ulcer from irritation due to contact of food and gastric secretion.

Abscess and perforation are the complications of perigastritis. For abscess the usual rule must be followed—drainage without disturbing the adhesions—very easy when the abscess lies anteriorly or is subhepatic, but very difficult and dangerous when placed behind the omentum in the lesser peritoneal cavity. The transmegacolic route with marsupialization of the cavity by fixation of the great omentum to the parietes is recommended by the authors.

SUBPERIOSTEAL FRACTURES OF THE HUMERUS IN CHILDREN.

STONE (*Boston Medical and Surgical Journal*, Aug. 11, 1904) reports five cases which illustrate the dangers of overlooking fractures in children, and he calls particular attention to the symptoms by which subperiosteal fractures of the surgical neck of the humerus may be diagnosed in the absence of the usual signs of fracture. The medicolegal importance of the recognition of such cases is obvious.

All five cases were so nearly identical that it seems that the diagnosis should be made with assurance from the clinical symptoms without the aid of the radiograph. Each occurred in a child beyond the age at which greenstick fracture is most common, and was the result of a fall upon the outstretched arm. This was followed by absolute inability to use the deltoid. Each child could, with varying hesitation and difficulty, raise the hand to the face and top of the head, but always with the arm kept as close to the side as possible. Passive motions in all directions could be made to the full normal limits, and were guarded by but slight spasm. There was a slight atrophy of the deltoid and scapular muscles.

The deformity was trifling. Each had a very sharp, bony ridge on the anterior surface of the neck of the humerus just at the seat of fracture; but this deformity might easily be overlooked unless attention was directed to its exact location.

Each had slight localized tenderness at the seat of fracture. Each had a very slight pain about the shoulder. The two signs of fracture usually sought, crepitus and abnormal mobility, were conspicuously absent. These injuries belong to what may be called subperiosteal fractures.

The radiograph showed the fracture to be transverse, with slight lateral displacement. In only one case was the impaction alone sufficient to have maintained the fragments in their relation to each other. Impaction may mask a fracture, but in children the absence of marked deformity, the absence of crepitus, and the absence of abnormal mobility are to be attributed in part to the slight impaction, but chiefly to the toughness and strength of the periosteum.

When after a fall on the arm or the shoulder a child is unable to abduct the arm, but presents none of the other signs of fracture or dislocation, and is able to move the arm in other directions, most careful examination should be made to determine localized tenderness anteriorly just below the head of the humerus, together with a slight irregularity in the contour of the bone at the same point. These signs are sufficient to establish the diagnosis of fracture of the surgical neck, and should deter one from further attempts by rough handling to secure crepitus or mobility.

VARICOSE VEINS TREATED BY WALKING.

MARCHAIS (quoted in the *Journal of the American Medical Association*, Sept. 10, 1904) applies massage at first for two to four weeks in treating varicose veins. This tones up the muscles and vessels and causes absorption of the edema. The varicose subject should not stand, nor walk slowly. Marchais advises a rapid walk, 100 steps to the minute, stopping short at the first symptoms of fatigue, and continuing when well rested. In case of recurrence of pain or edema, massage should be resumed. Elastic stockings and hot baths should be prohibited, but cold, tonic baths are useful. His results with twenty-two patients confirm the efficacy of this mode of treatment. Championnière confirms it, and applies the same principle in the treatment of phlebitis after the subsidence of fever. He is con-

vinced that immobilization favors embolism, and cites four cases in which fatal embolism occurred during immobilization of a fracture. He has his patients remain in bed after operations for varices, but leaves the legs free. None of his cases of phlegmasia alba dolens is immobilized, and all recover with surprising promptness.

COLEY'S FLUID IN THE TREATMENT OF SARCOMATA.

MATAGNE (*Annales de la Polyclinique Centrale de Bruxelles*, March, 1904) says that Coley's fluid is indicated in all varieties of sarcomata. Fifty per cent of the spindle-celled variety will recover, and five per cent of the round-celled variety. In inoperable sarcoma the results are unsatisfactory. No case of squamous epithelioma of the face has ever been cured by the use of Coley's toxins.

The treatment is justifiable in all varieties of operable malignant tumors, and should be employed for a prolonged period before operation to prevent recurrence. In several of the writer's cases the patient was free from recurrence after four years. Prevention of recurrence necessitates complete ablation of the tumor and affected glands. During the course of the preliminary treatment the tumor can be seen to shrink, and at the time of the operation it seems to have lost its virulence.

The treatment is begun with injections of from 0.05 to 0.1 gramme, depending upon the virulence of the toxin. They are made daily into the tumor tissue itself, and the dose is increased about 0.025 gramme every second or third day, until a febrile reaction, extending to about 102° F., is obtained. The chill which the patient experiences half an hour after the injection, and which lasts from one-half to one hour, is no indication. Some patients respond to 0.1 gramme or less, others can tolerate 0.5 gramme. If the injections cannot be made into the tumor, they should be made in the subcutaneous tissues; into the thigh or abdomen for abdominal tumors; and into the back for tumors of the breast. When injections are made in normal tissue, larger doses of the toxin can be used; the first puncture usually is followed by an erysipelatous patch, but this disappears within a few days; febrile reactions are rare and less

severe, and a temperature of 100° should be the sign of a maximum dose. The writer has seen numerous cases of abdominal sarcoma recover after this treatment alone. In inoperable cases the treatment should be tried for three to four months, treating the patient's general condition at the same time. If the patient is to be operated on, Coley's fluid should be used for two to four weeks before the operation.

OBSTETRIC PARALYSIS—SURGICAL TREATMENT.

WHITMAN (quoted in the *Journal of the American Medical Association*, Sept. 3, 1904) divides cases of obstetric paralysis into three classes: (1) Those seen soon after birth, in which the paralysis may be combined with other and what is considered more serious injury, such as fracture. (2) The cases brought for treatment during the latter part of the first year, when it has become apparent that complete recovery is doubtful. (3) The cases seen in childhood and adolescence, when treatment is sought with the hope that the disabled arm may be made more useful.

In the first class the treatment is rest, and the infant's arm should be fixed to the chest with the fingers extended. Gentle massage, flexion, extension, and supination of the forearm, manipulation of the fingers, and the like should be employed. As soon as the local tenderness has subsided, the same treatment should be applied at the shoulder.

In the second class manipulations and forced movements at each joint, with the aim of regaining the entire range of normal motion, are a first essential, combined with systematic exercise, as far as is compatible with the intelligence of the patient. It is during this period that progressive distortions occur, which in themselves prevent recovery, and it is never possible to estimate the degree of irremediable injury to the nervous apparatus until they are overcome. The most important of the distortions due to obstetrical paralysis is the subluxation of the humerus downward and backward. Cases of this character are often classified as congenital rather than acquired dislocations of the shoulder.

The treatment of this displacement consists in overcoming the contractions by

leverage of the arm, first in elevation and extension, to force the head of the humerus forward. The head is then pushed upward by lowering the arm, and finally is pushed into position by forcible adduction, while the scapula is fixed. When the displacement has been reduced, other contractions are stretched. The limb is then fixed for weeks or months usually by adhesive plaster and the plaster bandage, with the elbow behind the thorax, and with the forearm in supination across the chest. After removal of the fixation more or less forcible manipulation must be carried out to prevent recurrence of the former attitude. If the paralysis of the deltoid muscle is complete, the head of the humerus must be held in its new position with outward rotation, until it becomes securely fixed, or, if necessary, the attitude may be assured by arthrodesis. If the injury to the brachial plexus has been extensive, and subluxation of the humerus is not present, operative treatment may be of value in lessening the disability.

CEREBROSPINAL MENINGITIS TREATED BY INTRASPINAL INJECTIONS OF LYSOL.

MANGES (quoted in the *Therapeutic Review*, August, 1904) reports three cases of cerebrospinal meningitis, all of which recovered after intraspinal injections of lysol. This treatment was first introduced by Seager, who reported 31 cases of the epidemic type of the disease with 18 recoveries. His technique consists in making a lumbar puncture and aspirating varying quantities (frequently amounting to 50 cubic centimeters) of cerebrospinal fluid. Normal salt solution is then injected with the same syringe, the needle being *in situ*, and the surrounding parts are washed with the salt solution. Lastly, from 9 to 12 cubic centimeters of a one-per-cent solution of lysol is injected and the needle withdrawn. The temperature falls immediately, but rises again after one to three days. The puncture and injections are repeated after each temperature elevation until only clear and limpid fluid is withdrawn. Afterward a few punctures are made to see if the fluid remains clear.

Of the three cases treated by Manges by this method, one was a meningococcic in-

fection, and two streptococcic. The first patient was failing rapidly, and there was every reason to suppose that the case would end fatally. As all cases of cerebrospinal meningitis due to streptococci formerly seen by the author had ended fatally, there was no reason to suppose that these cases would recover.

The technique practiced by Manges differs slightly from that of Seager, in that he omits the flushing of the spinal canal with normal salt solution.

Ordinarily the treatment is not painful, and general anesthesia is not required. The quantity injected at one treatment varies from 3 to 9 cubic centimeters for children and from 12 to 15 cubic centimeters for adults. The injections should be repeated daily until the spinal fluid is no longer turbid.

PYOPERICARDITIS.

Pyopericarditis, according to SCOTT and LECONTE (*American Journal of the Medical Sciences*, September, 1904), is to be diagnosed by the following signs: The presence of a primary infection capable of producing pus; the development of a rapid, weak, and at times intermittent pulse, cough, and dyspnea; severe pain over the heart and epigastric region; a mild temperature; and mental symptoms of varying intensity. Associated with these symptoms pericardial friction rubs over the base of the entire cardiac area may be heard. They are at times altogether absent; then follows the rapidly increasing, pear-shaped precordial area of dulness, extending upward to the left second rib, to the right in the fifth, fourth, and third intercostal spaces, at times reaching the right midclavicular line, and to the left to and beyond the left midclavicular line. It is important to note that the apex beat, if present, is within this area of dulness and not at its extreme limits. The shape of the dull area varies with the amount of fluid in the sac. If the quantity is not large, the area is pear-shaped, with its base exaggerated. If the quantity is large, the dulness is almost circular or ovoid at its upper border, the center of the bow being the sternum. The lower dulness merges with that of the liver or even the spleen, but more often with the dulness or flatness of the consolidated lung or that produced by fluid

in the pleura. The apex is either lifted to the fourth space or disappears altogether, or the entire heart is bodily displaced to the right or left.

The sounds at the apex grow distant, and at times can be heard with difficulty.

The left axilla presents a hyperresonant note with exaggerated breathing; the left base may show a spot of compression dulness with bronchial breathing. To clinch the diagnosis an exploratory puncture should be made.

A formal operation for opening the pericardium should not be undertaken until the presence of pus has been proven. One drop is sufficient for a diagnosis, and this can be obtained usually with a slender needle similar to the ordinary hypodermic needle, but somewhat longer.

The point of election for paracentesis, or exploratory puncture, is in the fifth interspace, as close to the edge of the sternum as the needle can be made to enter. In this position there is the smallest chance of penetrating the pleura, and the internal mammary vessels should lie well to the outer side of the needle. If no fluid is withdrawn, and there is no evidence of penetration of the heart by motion imparted to the needle, the fourth interspace should be tried. If this also fails to demonstrate fluid, the needle should be introduced in the same interspace one and one-half or two inches from the left border of the sternum. If septic material is not found, there can be no danger of infecting the pleura, even though its cavity is invaded. If septic material is present in the pericardium the overlying space is almost certain to be obliterated, and under such circumstances the needle can pass through it without danger of further infection.

In the presence of a large collection of fluid, with feeble heart sounds, a local anesthetic is used. In those cases in which the heart action has not been seriously interfered with, ether would seem the best for general anesthesia.

The point of election for incision is the fourth left interspace, beginning one inch from the sternal border and extending to the normal position of the apex beat of the heart, about one inch internal to the anterior mammary line. The tissues are infiltrated with Schleich's fluid and the incision gradually deepened. When the pleura is adherent it cannot be recog-

nized; but if its cavity is free, and the incision has been carefully deepened, air will rush in as soon as it is penetrated, and before the pericardium has been opened. When pus is reached, it is allowed to flow out slowly for fear of embarrassing the heart by the sudden relief of pressure. A rubber drainage-tube is inserted and an ample dressing of gauze applied. This is sufficient for the time being, and the question of flushing the pericardium or resecting the costal cartilages may be put off until the physical signs show that the drainage is not good or that the tube is plugged with membranous lymph.

Intercostal incision produces no shock; it is the simplest procedure in grave cases; it permits of a more extensive operation at a later period if found inefficient; it permits the recognition of non-adherent pleural surfaces before the pericardium is opened; and in the majority of cases it will lead to a cure where a recovery is possible from an operative procedure. The question of the recovery of the patient is more dependent on the cause of the pyopericarditis and the pathological lesions present in other portions of the body than upon the choice of an operative procedure.

If excision becomes necessary, the chondroplastic flap suggested by Roberts is better than the removal of one or two costal cartilages. Roberts cuts his flap through the fourth and fifth costal cartilages and turns it upward, using the soft tissues of the third interspace as a hinge. On the normal cadaver it gives a good exposure of the internal mammary vessels and readily permits of their ligation if they cross the field of operation, and the border of the left pleura is easily recognized and can readily be dissected free and pushed aside if its surfaces are not adherent.

PERITONITIS SECONDARY TO APPENDICITIS—OPERATIVE RESULTS.

TRENDELENBURG (*Deutsche medizinische Wochenschrift*, 1904, Bd. 30, Heft 17) reports 86 cases operated upon for peritonitis secondary to appendicitis. Fifty-five (64 per cent) of the patients died, and 31 (36 per cent) recovered. Sixty-four were males, and 22 females. Of 71 patients less than thirty-five years

of age 28 (39.4 per cent) recovered; of 15 over thirty-five years of age, only three recovered. Of 70 patients with a first attack, 20 (29 per cent) recovered, of 12 with a second attack 9 (75 per cent) recovered, and of 3 with a third attack 2 (66.6 per cent) recovered. Before thirty-five years of age the prognosis is only one-half as serious as after thirty-five. If more than one attack of appendicitis has preceded, the chances of recovery are three times as good as if the peritonitis had developed during a first attack. Peritonitis arising directly from a perforated appendix offers better chances than peritonitis from an ileocaecal abscess secondary to appendicitis.

The duration of the peritonitis is of great importance. Six patients were operated upon on the day of onset, with 4 (66.6 per cent) recoveries; 15 on the day after the onset, with 13 (86.6 per cent) recoveries; 27 on the second day after onset, with 13 (48 per cent) recoveries; 37 on the third day or later, with no recoveries. More patients recovered during the last two years than during the first six, owing to earlier operation and improved technique. This consists of an inch incision in the median line above the symphysis, and evacuation through it of the peritoneal fluid; a three-to-four-inch incision over the appendiceal region, and the removal of the appendix if it is easily found and the patient is not too weak; and providing for drainage by making a counter-opening through one or both lumbar regions, and for women through the vagina also. He does not take the intestines from the abdominal cavity to cleanse them as was formerly his custom, on account of the difficulty of returning the distended intestines to the abdominal cavity, the shock this procedure produces, and because experiments have taught its uselessness; after the greater part of the exudate has been removed the peritoneum will absorb the rest, especially in the earlier cases. He does not employ normal salt solution for lavage of the abdominal cavity as much as formerly, as increase in pressure and dilution of pus have been followed usually by rapid absorption of toxins. If pressure be increased, cardiac paralysis is often the result. It is absolutely essential to operate early in appendiceal peritonitis, as well as in acute appendicitis to prevent peritonitis.

INTERMITTENT HYDROPS OF THE JOINTS.

The local condition in intermittent hydrops of the joints usually consists of an effusion, which may be small in amount, but in some cases the cavity of the joint is so tensely distended as to cause considerable pain. In one of the cases reported by MARSH (*Lancet*, June 4, 1904) the fluid removed from the knee-joint was sterile and consisted merely of diluted synovia. In a few instances, while there has been little or no effusion in the affected joint, the synovial membrane has been swollen and the surrounding tissues have been edematous. No case of suppuration, nor of formation of adhesion suggesting inflammatory changes, has been recorded.

The joint most frequently involved is the knee. Often both knees are affected and are the only joints attacked. But all the large joints, and even the temporomaxillary and the intervertebral joints, may be involved. The condition may be limited for some years to one particular joint, or several joints may be attacked simultaneously or alternately, or many joints may be attacked in succession. The attacks reach their height, in the majority of cases, in two days, and subside in two days, so that they extend in all over four days.

Severe neuralgia is often a prominent feature in cases of intermittent hydrops. Some patients have complained of periodic neuralgic pains long before the joint affection was observed, while Brackett and Cotton remark that "in some cases severe arthralgia seems to be definitely the equivalent of the effusion." The alternation of the joint affection with periodic pains, or the substitution of the latter for the former, at times is a very striking phenomenon. As to the pathology of this group of cases nothing definite is known at present.

The time of the recurrence of the attacks varies widely in different cases. In one the attacks occurred every evening. In some an attack takes place every third or fourth day; in some only once a month. In two there was an interval of three months. The period of recurrence most commonly observed is between the ninth and fifteenth day. In some cases the period changes; in one it changed from the thirtieth to the ninth day; in another from three months to eleven days. The affection

is slightly more common in the female sex. As to age, although a doubtful case has been reported in a girl aged nine years, only three cases began as early as the fifteenth year. One patient was fifty-four years old. The affection most commonly begins about the twenty-sixth year. In a few instances the attacks have corresponded with the menstrual periods.

Nothing definite is known of the pathology of intermittent hydrops of the joints. Quinine and arsenic are the only drugs known to have been of value in the treatment of this affection. Both have failed in some instances, but many cases have been cured. Arsenic has proven useful more often than quinine. The writer suggests giving quinine as the first step, and if it fails, to prescribe arsenic, and if improvement is delayed to continue it with due caution for several weeks or longer.

No form of local treatment has been of any definite service. During the attacks the joints must perforce be kept at rest as the patient is unable to use them, but rest has no effect in preventing or materially modifying the attacks.

TEMPORARY EXPOSURE OF STUMPS IN COMPLICATED FRACTURES.

In severe, complicated septic fractures DOBERAUER (quoted in the *Journal of the American Medical Association*, Sept. 3, 1904) avoids amputation, if possible, by freely exposing the parts. Five cases thus treated are described. The fractured leg or arm was turned back on itself in such a way as to make the wound gape and the fractured stumps project, the stumps being held well apart by antiseptic sponges. This allows better inspection of the wound, does away with all menacing recesses and dead spaces, and injury of the soft parts from the jagged stumps. Necrotic tissues can be removed more readily and drainage facilitated. When mere incision and drainage prove ineffectual, this opening up of the region may control the severest infection and save the limb after failure of all other measures. It is so simple and effectual that it can be employed even without waiting to apply other measures, in certain cases, and may save many a limb otherwise doomed to amputation.

Reviews.

CLINICAL HEMATOLOGY. A Practical Guide to the Examination of the Blood. By John C. Da Costa, Jr., M.D. Second Edition, Revised and Enlarged. P. Blakiston's Son & Co., Philadelphia, 1905.

On the appearance of Dr. Da Costa's book of Hematology three years ago, it immediately obtained recognition not only for the value of the matter which it contained, but also because its pages showed an intimate knowledge on the part of the writer with the large subject of the value of examinations of the blood in the study of disease. When we consider the few years which have elapsed since our knowledge of hematology was limited to the counting of the red and white cells, it is remarkable that this branch of medical investigation should have been carried forward so far. As a matter of fact, no careful practitioner can, at the present time, consider that he has exhausted all his methods of diagnosis until he has brought clinical hematology to his aid.

It must not be thought that Dr. Da Costa's work deals alone with the subject of the microscopic examination of the blood. On the contrary, it deals with medicolegal matters which arise in criminal cases, with the blood as a whole, and with the abnormal conditions of the blood aside from changes in its corpuscles, such as bacteriemia, hemolysis, Ehrlich's side-chain theories, and contains an exhaustive consideration of the physiology and pathology of this important tissue.

In the section on technique, among the newer methods of clinical blood study described are Wright's stain, Milian's method of coagulometry, Reudiger's serum test, and cryoscopy.

The latter part of the book is devoted to a consideration of the changes which take place in the blood in the various infectious diseases, extending from the more familiar changes which occur in diseases such as typhoid fever to such unfamiliar conditions, in this country, as trypanosomiasis, kala-azar, spotted fever, and sprue. The volume closes with an index of authors, and an index to subjects. As we have stated at the beginning of this notice, it is to be regarded on the one hand as a clinical manual for the active worker by an active worker, and as a complete summary of our knowledge of this subject by

one who has kept himself in touch with the best and most recent literature concerning it.

No notice of this book would be complete without mentioning the beautiful illustrations which are scattered through its pages. These plates are exceedingly difficult to obtain, since no one but a skilled artist can possibly represent the changes which are seen under the microscope, and it is difficult to find a lithographer who can prepare a plate which will produce results which even resemble what is seen upon the stage of the microscope.

The book is a credit to its author, and to the college in which he is a teacher.

A COMPEND OF DISEASES OF THE EYE AND REFRACTION. By George M. Gould, A.M., M.D., and Walter M. Pyle, A.M., M.D. Third Edition, Revised and Corrected. P. Blakiston's Son & Co., Philadelphia, 1904.

The third edition of this Quiz-Compend contains a preface to the first and second editions, but no preface for itself. It is, as are most quiz-compendes, a brief summary of our knowledge concerning ophthalmology, and as it is prepared by men of ample clinical experience, it may be considered an accurate condensation of modern ophthalmological knowledge. That it will enable any one to practice ophthalmology with success, we presume even its authors would doubt, but as a means for the student to brush up facts which he has heard in his lectures and clinics it can be recommended. The glossary of ophthalmologic terms at the end of the book is very brief, and is condensed from Dr. Gould's Dictionary of Medicine.

A COMPEND OF THE PRACTICE OF MEDICINE. By Daniel E. Hughes, M.D. Seventh Revised Edition, by Samuel Horton Brown, M.D. P. Blakiston's Son & Co., Philadelphia, 1904.

When the sixth edition of this book of Dr. Hughes appeared, we pointed out in the columns of the THERAPEUTIC GAZETTE that it was an eminently satisfactory condensation of modern medical knowledge so far as medicine in distinction from surgery is concerned. Owing to the death of Dr. Hughes, it has been necessary for the publishers to find some one to prepare the seventh edition for the press, and the editor has seen fit to materially increase the size of the volume, adding no less than 137 pages and 27 new

illustrations, as well as new prescriptions and other material of equal value. To those who desire a book of this character we can cordially recommend it, although it should be distinctly understood that it is not by any means a complete "Practice of Medicine." In the present edition a very large number of pages have been devoted to diseases of the nervous system, and particularly to diseases of the skin, which cover nearly 120 pages.

A DICTIONARY OF NEW MEDICAL TERMS. Including Upwards of 38,000 Words, and Many Useful Tables. By George M. Gould, A.M., M.D. P. Blakiston's Son & Co., Philadelphia, 1905. Price \$5.00.

If ten years ago the question had been asked as to whether the medical profession was well supplied with medical dictionaries, the reply would undoubtedly have been in the affirmative. Yet on the appearance of Dr. Gould's magnificent volume, it obtained for itself a position which placed its author in the first ranks of medical lexicographers, and those who knew him, personally, marveled at his skill and ability in this line of medical work.

We now have placed before us a volume which is a companion to the earlier one, and which contains 571 pages. It is not a complete dictionary, nor is it intended to be such; but, as its title indicates, it is designed to act as a supplement to the earlier volume and provide the profession with a complete synopsis of the medical terms which have been introduced, or have become popular, in the last decade. As the author well says in his preface, "Nothing so well illustrates the astonishing vitality in the present-day medical science as its unparalleled multiplication of new words." Although, strictly speaking, every word in this new supplement is not new, it is also a fact that many of them possess meanings which at one time they did not have. Those who have the dictionary itself, and they are a legion, will be glad to possess this important and complete supplement.

THE DOCTOR'S RED LAMP. A Book of Short Stories Concerning Daily Life. Selected by Charles Wells Moulton. The Saalfeld Publishing Company, Akron, Ohio, 1904.

This volume, which forms one of the "Doctors' Recreation Series," is, if possible, better than the one which we noticed a short time since. The stories are longer,

and therefore less numerous, but they are better, and seem to us to provide both the doctor and his patient with excellent material for amusement and mental improvement. Amongst the stories which we think will attract particular attention in this volume are "The Various Tempers of Grandmother Gregg," by Ruth McEnery Stuart; "The Doctors of Hoyland," by Conan Doyle; "On the Indian Frontier," by Henry Seton Merriman; and "The Doctor, An Old Virginia Fox Hunter," by A. G. Bradley. Four handsome illustrations decorate the volume.

PRINCIPLES AND PRACTICE OF GYNECOLOGY FOR STUDENTS AND PRACTITIONERS. By E. C. Dudley, A.M., M.D. Fourth Edition, Revised, Illustrated. Lea Bros. & Co., Philadelphia and New York, 1904.

The first impressions given the reviewer of Dudley's book are conveyed by the admirable, numerous, and helpful illustrations, and the systematic arrangement of the matter. As nearly as such a thing is possible without practical experience, the student of this book is put in possession of the knowledge essential to the diagnosis and to the medical and surgical treatment of practically all gynecological affections.

To this, the fourth edition of his Gynecology, more than 300 new illustrations have been added. A particularly valuable feature of these is incident to the fact that all minor and major manipulations and operations are illustrated as they take place step by step. For example, twelve drawings describe the steps of hysteromyomectomy, and thirty-two describe perineal lacerations, and the steps of perineorrhaphy.

The first part is devoted to general principles, including physiology, septic infection and aseptic technique, diagnosis, operations, drainage, after-treatment, and relation of dress to diseases of women. As to the preparation of the operator and assistants Dudley insists that they be in good health, and especially that they be free from nasal catarrh and coryza. The hands should be scrubbed in soap and water hot as can be borne; the scrubbing vigorous and prolonged for at least fifteen minutes. Thereafter, potassium permanganate and oxalic acid are employed, and, finally, the operator wears rubber gloves. It is suggested that the operator wear short hair and that he be beardless. No

mention is made of the fact that the prolonged scrubbing and the use of oxalic acid produce, in some people, a dermatitis which makes subsequent sterilization of the hands quite impossible.

The second part is devoted to inflammations and allied diseases. The third deals with tumors, tubal pregnancy, and malformations; the fourth with traumatism; the fifth with displacements; and the sixth with disorders of menstruation and sterility.

Throughout the volume the symptomatology and diagnosis are brief and clear, the treatment is based on common sense, and the operative technique described in complete detail.

Such a work as this is assured of a popular reception on the part of the profession.

APPENDICITIS. By Bayard Holmes, B.S., M.D. D. Appleton & Co., New York, 1904.

Holmes states that this brochure contains his experience, corrected by that of other operators, in the surgery of the most mournfully interesting and unique structure of the body. "Anterior," "posterior," "superior," and "inferior" are displaced by "ventral," "dorsal," "cephalic," and "caudal," with the adverbs "ventrad," "dorsad," "caudad," and "cephalad," meaning in the various directions indicated.

The first chapter is devoted mainly to symptoms, and is illustrated with a plate, somewhat startling in character, which suggests that a large bladder of blood has burst with great violence in the right iliac fossa, and that a smaller one has undergone the same fate over the ensiform process. Holmes states that the abdomen comes to appear to the diagnostician as if it were a semitransparent manikin in which particular points stand out brilliantly luminous. The crimson splashes in the illustration indicate the diffusion of clinical symptoms. There are other drawings illustrated with incardinated meteors, illustrating, for instance, affections of the gall-bladder.

The third chapter is devoted to obscure forms of the disease. Throughout the book we have such headings as Diagnosis and Differential Diagnosis, Treatment, Peritonitis, Intussusception, and Perforating Typhoid Ulcer. There is a final chapter on carcinoma of the intestinal

tract, and a brief bibliography. The book, with the exception of an index, finally closes with adages, among which may be quoted, "Appendectomy frequently cures gastritis, constipation, sick-headaches, and results in taking on of weight and in increase in mental and physical vitality." Many case-histories are quoted.

The subject is discussed from the standpoint of a medical man with a large experience.

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE. By George M. Edebohls, M.D. New York, Lisiecki.

The cheerful optimism with which Edebohls presents to the profession the results he has obtained by stripping the capsule of the kidney in the treatment of Bright's disease, the continued success which has followed his efforts in this operation, and the more or less complete failure which has resulted from the application of his methods on the part of others, are factors which add to the interest with which a book on this subject, by him, will be received. The reviewer has, however, a feeling of disappointment when he finds that this book is made up of reprints and the histories of 72 patients operated upon by the author, with an analysis of the results. In his summary he states that of 16 suffering from chronic nephritis who came to him for operation and whose deaths were imminent, 9 were saved by operation, while in 7 the attempt to save life failed. Of 22 remote deaths, none were due to operation. In 6 the operation did no good, 16 were more or less benefited; 20 patients were decidedly improved, and 17 were cured. These results, together with the pathological finding which Edebohls quotes, to the effect that the new capsule which forms becomes immediately vascularized, are distinctly in contradiction to the result of the majority of surgeons who have given this method of treatment a trial.

RAILWAY AND OTHER ACCIDENTS. By Allan McLane Hamilton, M.D. Illustrated. New York: William Wood & Company.

To one who is led by the title of this book to open it with the idea that he will find therein described the crushings, bruising, and internal traumata incident to railway accidents, with the appropriate treatment therefor, Hamilton's table of

contents will prove a distinct disappointment. His work is essentially intended for use in court cases, hence interests the lawyers as well as the doctors of medicine. That the lawyers may not wander astray in the maze of incomprehensible terms, and that the author may, at the same time, use the words with which he is familiar, there is appended a glossary giving definitions of phrases which are in the main technical, although perhaps such words as hallucination, lesion, migraine, and paralysis agitans would seem to be in sufficiently common use to require no glossary for their elucidation. The first chapter is entitled Accident Aboulia, a term for which even the professional reader would require a definition. The synonyms are given as railway-spine, spinal contusion, traumatic neurosis, traumatic neurasthenia, traumatic hysteria, and litigation psychosis (asthenic and neurasthenic), and the hysterical types are described; the symptomatology embraces almost every recognized functional disorder of the nervous system.

It is alleged that stout laboring men are as apt to become suddenly neurasthenic or hysterical after an accident as those of whose predisposition there can be no doubt. Attention is called to the fact that since Jewish immigration has increased, many of the plaintiffs are of this race, this being in accord with the well-known predisposition of the Semite to insanity, as well as to other nervous disorders of a similar kind.

As to the alleged cause of injury in traumatic neurosis, falls backward are the more common. There is neurosis not only following general injury, but developing when there is no other obvious physical trauma.

The chapter on the injuries to the cranium and its contents follows more closely the ordinary text-book teaching on this subject. In a chapter upon traumatic insanity, the writer points out that many irregular psychoses are undoubtedly traumatic, and that head injuries are not the most fruitful cause of insanity. The form in which the trouble is due to direct cerebral injury, and is expressed by slowly developing motor symptoms, vertigo, headache, and changes in mental health, is commonly known; the form in which the affection is due to shock alone, without history of any damage to the cerebral tis-

sue, or resulting cause of disorder, is little recognized.

The chapter devoted to the injuries of the spinal column and its contents includes fractures, dislocations, spinal tumors, degenerations of the cord, and the localization of cord lesions. There is a section devoted to examination, and possibility of error is given careful consideration.

Perhaps one of the most striking features of the book, yet one which cannot be considered of great practical value, is the figure on page 247, modified from Dana, in which on the surfaces of a nude, symmetrical figure are plotted small areas of referred pain. Thus, one marked over the outer side of the malar prominence is supposed to indicate decayed teeth and eye-strain, one to the right of the umbilicus points to the bladder, and one covering the trochanter major suggests the broad ligament and ovaries.

There is a discussion on prognosis in relation to verdict. Necessarily, in such a work, considerable space is devoted to this question. Hamilton is evidently a believer in the value of illustrative cases; these are selected with great judgment and go to make up a considerable portion of the book.

This is likely to prove a most serviceable work to those for whom it is intended—the lawyer and the court doctor.

A PRACTICAL TREATISE ON GENITO-URINARY AND VENEREAL DISEASES AND SYPHILIS. By Robert W. Taylor, A.M., M.D. Third Edition. Thoroughly Revised. With 163 Illustrations and 39 Plates in Colors and Monochrome. Philadelphia: Lea Bros. & Co., 1904.

The third edition of Taylor's classical treatise on genito-urinary and venereal diseases and syphilis has been fully revised and has been enriched by new sections which seem needful, because of the rapid advance made in the knowledge of the affections with which this book treats. He who dips into this book simply for information on a given point, or he who reads it through for the purpose of obtaining a comprehensive knowledge of the subject, will be equally satisfied. The subject of gonorrhea has received a consideration almost encyclopedic in its thoroughness. The abortive treatment is given the consideration which its importance and efficacy in suitable cases warrants, silver nitrate being the application of choice. The most important local treatment ad-

vised for acute gonorrhea in the early and inflammatory stages consists in the immersion of the penis in very hot boric acid solution for fully fifteen minutes three times a day. In the section devoted to hypertrophy of the prostate it is noteworthy that the author considers suprapubic prostatectomy as the operation to be chosen in the great majority of cases demanding relief.

There is found in its proper place a very satisfactory description of Catlin's urine separator with directions for using this excellent instrument. In the section upon chancroid it is evident that Taylor does not accept the doctrine that this lesion is always due to the Docré-Unna streptobacillus, a standpoint in which he is not alone.

As to treatment he solemnly warns against the use of ointments and fatty preparations and never resorts to excision, holding that nothing but harm can follow these procedures. Iodoform he believes is the most efficient all-around application, but this drug should be suspended when chancroids take on a granulating surface.

The section devoted to syphilis is particularly full and satisfactory. Taylor's views as to treatment are well known and widely accepted. Thus he finds that the regular methodical treatment should not be begun until the onset of the general manifestations. As to the choice of drugs he selects the protiodide, thymo-acetate, and the tannate, given in pill form. His initial course is active and prolonged. The test of the efficient treatment is the disappearance of symptoms and the well-being of the patient.

It is safe to predict as cordial a reception and as wide-spread a use of this edition of Taylor's book as were accorded its predecessors.

Correspondence.

LONDON LETTER.

By GEORGE F. STILL, M.A., M.D., F.R.C.P.

The hue and cry with regard to physical degeneracy continues, and even increases, in spite of the repeated denials from high quarters that any such degeneracy has occurred. During the past month a meeting of the Medico-Legal So-

ciety, which was held in London under the presidency of Sir William Collins, discussed this subject, and the opener, Dr. R. Rentoul, advocated drastic measures for the cure of this supposed evil. He said that the proportion of mentally degenerate to the whole population in this country is now one to fifty; and the maintenance of these mentally unfit, together with the physically defective, costs the country forty-five millions sterling per annum. He considered that no person sane or insane had any right to stamp his offspring with mental or bodily disease, and he recommended as the only radical cure for the present state of things wholesale sterilization of "the unfit." The particular methods suggested are vasectomy and salpingotomy, and these he would make compulsory for all idiots, imbeciles, congenitally deaf, confirmed epileptics, feeble-minded, backward and defective children, lunatics, habitual criminals, inebriates, many in reformatory and industrial schools, habitual vagabonds, tramps, vagrants, casuals, and prostitutes—and the children of each of these classes! This somewhat extensive measure was seriously discussed by the Medico-Legal Society, and it was pointed out that the vague terms used by Dr. Rentoul—for instance, "degenerates" and "defectives"—were extremely difficult of practical definition; moreover that he had assumed a law of heredity which was not proved, and had entirely disregarded the "inherited mean," the average to which all heredity probably tends. The chairman in summing up emphasized the importance of environment in the prophylaxis of degeneracy, and objected to the compulsory mutilation which had been proposed, as unsurgical and unadapted to the ethical requirements of society.

At the Polyclinic or Postgraduate College in London a lecture was delivered recently by Mr. J. Ernest Lane on the treatment of syphilis. The mild cases are, he said, apparently cured by the simple oral administration of hydrarg. cum creta. He used the term "apparently" advisedly, for in many cases of syphilis such treatment is quite insufficient and ephemeral in its results; at a later period the patient who has been treated in this way is often attacked by more serious manifestations of the disease. Medical men frequently

show a lack of resource in dealing with the more malignant and destructive forms of syphilis. There is one drug, and only one, which is to be relied upon in the early stages of syphilis, and that is mercury, but it makes all the difference how and when this is administered. Some would begin giving it directly the suspicion of syphilis arises, others would wait until secondary symptoms appear. Mr. Lane himself favored the latter view: often, he said, sores which have been thought syphilitic turn out not to be syphilitic, and it is a grave mistake to subject patients needlessly to so irksome a course of treatment; at the same time it must be admitted that by early treatment the virus is attenuated, so that secondary symptoms may be much diminished or may not occur at all. But if mercury is to be used, how shall it be given? Mr. Lane objects to oral administration inasmuch as it is apt to produce digestive troubles; the absorption of the drug is slow and uncertain, so that although much may be given little may be absorbed; and lastly, in severe cases mercury administered by the mouth is not sufficient to cure the disease.

At some of the European spas—*e.g.*, Aachen and Wiesbaden—inunction of mercury is in favor for the treatment of syphilis; but this method is at best uncertain in its effects, its success is largely dependent upon the manipulative skill of the rubber, absorption is slow, and the amount of mercury absorbed by the skin varies greatly—it may be too much or too little. The method is only applicable where the skin is sufficiently tolerant, it is dirty and inconvenient, and has the disadvantage that it cannot be concealed from the family of the patient.

Mr. Lane expressed himself as strongly in favor of the administration by intramuscular injection, the method introduced by Scarengio in Italy more than forty years ago. For this purpose mercury may be used in two forms, either (1) as the soluble salts dissolved in sterilized water, or (2) as the insoluble salts suspended in sterilized oil or vaselin. The advantages of the soluble salts—of which Mr. Lane particularly mentioned the sozoiodolate and the succinimide of mercury—are that the pain following the injection is less than from the insoluble salts, and that the rate of absorption is more constant than with

the insoluble forms; the disadvantages are that a smaller quantity of the salt must be introduced each time, and that therefore much more frequent injections are necessary. The method he advocated was this: A solution of hydrarg. sozoiodolatis \mathfrak{z} j, sod. iodid. \mathfrak{z} j, aq. destillat. \mathfrak{z} ijs, is prepared,, and of this m. xiv (containing gr. $\frac{1}{2}$ of the mercury salt, and gr. j of the sodium iodide) is injected on each occasion. If the succinimide is used, a tablet containing gr. $\frac{1}{5}$ is dissolved in sterilized water, about fifteen minims, and this dose is used for each injection. A Luer's glass syringe, which has the advantage that it can be thoroughly asepticized, should be used; the needle should be of platinum or of iridium, and should be not less than two inches long. The safest point for injection is the middle of a line drawn from the top of the intergluteal fold to the anterior superior spine of the ilium. With the patient lying prone the needle is plunged perpendicularly into the muscle; the deeper the injection the less the pain. If the soluble salts, as mentioned, are used the injections must be done every day or every alternate day until twenty or thirty injections have been given.

The other method is to use calomel (vaporized calomel first reduced to the very finest powder) suspended in sterilized olive oil: gr. $\frac{3}{4}$ to m. xvij of the oil. This should be injected about once a week until six or eight injections have been given.

In either case treatment should extend over eight or nine months in the first year, six months in the second year, and four months in the third year; and then if no symptoms have occurred for two years the patient may be assured that probably no further manifestations of the disease will appear.

It was noteworthy that the lecturer touched very lightly on some of the incidents of treatment which have been observed by those who have used intramuscular injections for syphilis: the sciatic nerve has been injured, causing prolonged and severe pain; local abscess has occurred at the site of the injection; the gluteal vein has been wounded and pulmonary infarcts have resulted; but all such accidents he apparently considered as "a negligible quantity."

The Bradshaw Lecture was delivered by Mr. Mayo Robson at the beginning of

two weeks, of all degrees of severity. One patient of strumous habit died. Quite a number of those with the milder form of the disease were not confined to bed, while others were sick enough for two or three days to require such restraint, afterward being permitted to get up and go about. In fact the mildness of the disease up to the fourteenth day, despite the rapidity and certainty of infection, threw the attending physician off his guard, and he made a diagnosis of tonsillitis, chiefly because of the small amount of swelling of the submaxillary and sublingual glands.

On the morning of the fourteenth day a boy, two years old, who had been adopted by the superintendent, was seized with dyspnea and fever. By 9 P.M. he was in a state of collapse, and two consultants, Dr. Spooner and the writer, were called. Immediately the use of antidiphtheritic serum was begun. Despite the fact that our available supply was deficient in quantity, 4000 units was given at 10.30 P.M. The child died at 5 o'clock the following morning.

Each of eight other children who were suffering with croup (laryngeal diphtheria), dyspnea being very prominent, received from 1000 to 4000 units of serum on the evening of the fourteenth day. As a supply of antitoxin could not be obtained at once, only the usual medicinal treatment was carried out on the fifteenth day. Upon the sixteenth we received 60,000 units of fresh antidiphtheritic serum. Soon its effect began to be manifest in a better condition of the patients, and by the evening of the seventeenth day the epidemic was fairly under control.

All but one of the croup cases improved markedly after the administration of the serum. This patient had had 3000 units, and was now given 2000 units additional. Nurses and medical attendants worked faithfully all night, without change for the better. At 3 A.M. on the eighteenth day the child received 4000 units more, and although we had no hope of his recovery, by 2 P.M. he began to improve.

One strumous child developed an eruption which at first was assumed to be the usual urticarial rash, but more careful observation showed it to be the usual concomitant of hemorrhagic diphtheria, a form I have seldom seen. This patient died, having received in all 12,000 units

of serum, and I believe a different termination might have been realized if we had had an adequate supply of serum on hand on the fifteenth day. Autopsy revealed marked degenerative changes in the mucous lining of the larger bronchi.

The fatal case just referred to was the third in a series of sixty-four occurring among the children in the Home. The other two patients died before any benefit could have been expected from the serum—that is, before sufficient time could have elapsed after its administration for a beneficial effect to be obtained. One of these cases did not have serum treatment, the other received a dose while moribund. Hence the percentage of loss should be based upon sixty-two cases, among which there was but one death. Furthermore, I am satisfied that this death could have been averted had a supply of serum been available earlier, a circumstance that would have made the mortality *nil*.

In combating this epidemic 116,000 units of serum were used. In none of the cases were the submaxillary and sublingual glands swollen to a great extent. Improvement was noted in each case usually within twelve hours after the first injection of the serum. Reinfection occurred in six or eight cases, which yielded promptly to a second injection. From this experience I am confident it is better to begin treatment with 2000 to 4000 units, according to the severity of the disease, and to repeat the dose of say 2000 units every three hours until improvement is marked, rather than to give the amount deemed necessary at once, and then wait twelve hours before making the second injection. The serum is practically harmless, though the objection of its cost is liable to arise. But when life is at stake that should not be considered. On the other hand, if the potency of the initial dose be insufficient to neutralize the total quantity of toxin present in the patient's body, the excess of toxin may cause a fatal termination in many feeble cases and thus discredit a scientific procedure. Under this plan of treatment and with a reliable antidiphtheritic serum at our disposal, as we used in this epidemic, we need no longer fear this dreadful malady.

Yours truly,

J. W. MOORE, M.D.

Mexico, Indiana.

—THE— Therapeutic Gazette

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Original Communications.

A CASE OF HOUR-GLASS STOMACH THE RESULT OF AN ULCER ON THE LESSER CURVATURE WHICH PRODUCED A SEPTUM OF THE ANTERIOR WALL OF THE STOMACH; ANTERIOR GASTRO-GASTROSTOMY; RECOVERY; CURE.¹

By W. W. KEEN, M.D., LL.D.,

Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia.

The following case I think worth reporting on account of its cause, the rather unusual situation of the gastric fold dividing the stomach into two pouches, and the consequent unusual site of a gas-

trogastrostomy, as well as the very satisfactory result.

Chas. T., aged twenty-six, weight 144 pounds, was admitted to the Jefferson Medical College Hospital September 22, 1904, under the care of Dr. S. Solis Cohen, who has kindly furnished me with the following history: "His father died suddenly of an unknown cause; his mother and two sisters are living and well. He had measles, pneumonia, and whooping-cough while a student in Girard College (for orphans). He was in good health until five years ago, when, at the age of twenty-one, after some gastric uneasiness, he suddenly vomited a large amount of blood, which he persists in describing as dark-colored. He has used liquor, but never to excess, and for two months preceding his admission to the

¹Read at the Pan-American Medical Congress, Panama, January, 1905.

hospital not at all. He has, however, smoked almost all the time. He admits having had a chancre two years ago, but he has observed no secondary symptoms.

"He dates his present illness from the time when he went to work on a dairy farm, about a week before his admission. He attributed it to "catching cold," as he was compelled to work in a room where the water was flowing across the floor all the time, and his feet, therefore, were constantly wet.

"The chief complaint is of pain at the pit of the stomach. He is able to place the tips of two fingers on the exact spot. Upon eating the pain is relieved for a short time, but soon recurs. It is so severe as to disable him from all occupations and to require the use of morphine. There is no nausea or vomiting. He asserts that he has passed a small amount of bright blood by the rectum. This may have come from some small hemorrhoids which are found to be present. There is constipation. Appetite is much impaired, but there is a craving for sweets. There has been but slight loss in weight.

"On examination the viscera of the chest are normal; the liver dulness is slightly increased downward and to the left; there is marked rigidity of the upper portion of the left rectus muscle, especially over an area about 7 centimeters in length, and the width of the muscle, corresponding pretty closely with its second segment, and a small mass can be obscurely felt in this region. On percussion over this area tympany is elicited at first, but on continuing the percussion the sound changes to dulness, and then gradually returns to a tympanitic note. Fluorescent transillumination of the stomach (after the method of Kemp by introducing the gastrodiaephane after the patient has swallowed a pint or more of alkalized water containing $\frac{1}{8}$ to $\frac{1}{4}$ grain fluorescein in solution) showed but one small circle of illumination about 4 centimeters in diameter near the cardiac end of the stomach, at the junction of the eighth rib with its cartilage, 11 centimeters to the left of the middle line. There was no difficulty in continuing the insertion of the tube for its full length; but the light disappeared, to reappear in the same region as the tube was withdrawn. The observation was confirmed by a number of repetitions of the maneuver.

"Examination of the gastric contents showed them to be acid, that they were free from decomposition, that free HCl was present and lactic acid absent; total acidity, 0.2784.

"Blood examination September 24, 1904: Erythrocytes, 4,650,000; leucocytes, 4400; hemoglobin, 90 per cent; color index, 0.9.

"Differential count of leucocytes: Polynuclears, 68 per cent; small lymphocytes, 22 per cent; large lymphocytes, 8 per cent; eosinophiles, 2 per cent; iodophilia, negative.

"Urine: clear, very light straw color, specific gravity 1.002, reaction slightly acid, albumin absent, sugar absent, urea 0.4 per cent. Under the microscope no crystals are found, amorphous urates are present, as are also a few squamous epithelial cells and a few leucocytes; blood is absent, tube casts are absent. On September 28, a second examination of the urine showed it to be turbid, light straw, 1.010, alkaline, containing neither albumin nor sugar; urea was 2.2 per cent; triple phosphate crystals, amorphous urates and phosphates, and a few leucocytes were present; there were no epithelial cells, no blood, no tube casts."

Both to Dr. Cohen and myself the diagnosis was obscure. That there was some local tumor mass there was no doubt, but precisely its connections and its character were quite uncertain. Why the gastrodiaephane only illuminated a single point to the left, all the rest being dark, was not obvious. At the patient's age carcinoma of the stomach would be especially rare. That probably he had had an ulcer, the hematemesis five years before seemed to show pretty clearly. He had never vomited any blood since then. An hour-glass stomach never occurred to either of us, and he was not examined with a special view to its possibility. While, therefore, it was evident that surgical procedure was necessary, it was undertaken rather as an exploration than with a definite idea of what was to be found.

Operation September 28, 1904. I made an incision 2 centimeters to the left of the middle line. The pylorus and the upper duodenum were drawn out with moderate ease. Four centimeters from the pylorus was a scar on the outer wall of the duodenum without much thickening of the duodenal wall. Possibly this was the scar

of a former ulcer at this point. On attempting to draw the stomach out through the incision, I found that it was very tightly adherent, the adhesions running upward and backward from the lesser curvature. It was with great difficulty that I could draw out any considerable portion of the stomach, and I was not able to reach the left portion of the lesser curvature at all. I almost, therefore, entirely missed discovering the actual condition of a bifid or hour-glass stomach. I then liberated the adhesions which passed from the lesser curvature of the stomach about its middle upward and to the left. This finally enabled me to draw out the entire stomach, when the

sion on the anterior wall of the stomach on each side of the deep sulcus between the two pouches. These two incisions extended upward as near to the lesser curvature and downward as near to the lesser curvature as possible without interfering with the large vessels, say within a little over one centimeter of each curvature. None of the tissue of the wall of the stomach was removed. The two proximal and the two distal margins of the two openings were then united to each other by suture (Fig. 3), with a reënforsing seroserous suture.

Only once did his temperature go above 100°, and then only to 100.4° F. He made a perfectly uninterrupted recovery,

FIG. 1.—Shows the site of the ulcer, the adhesions, and the furrow in the anterior wall of the stomach. The dotted line shows the site of the two incisions made after the adjacent margins of the furrow were sutured together.

hour-glass condition was immediately discovered. There was a hard mass at the middle of the lesser curvature of the stomach. This had made so much traction on the anterior wall as to throw the anterior wall of the stomach into a very deep furrow, or fold, into which I could pass my fingers nearly to the knuckles (Figs. 1 and 2). This furrow separated the stomach into two portions, of which the pyloric portion was somewhat the larger. After sewing together the adjacent walls of the furrow I made an inci-

and was discharged from the hospital October 20 in excellent condition. He was able to eat everything with relish and comfort, and in the twenty-two days since the operation had gained 9 pounds.

Remarks.—Hour-glass stomach, though not very rare, is sufficiently uncommon to make it desirable that all cases should be reported. In this particular case the manner in which the stomach was divided into two compartments was, I think, very unusual. The ulcer, which manifested its presence five years before by a seri-

hemorrhage, was situated near the middle of the lesser curvature, a little more anteriorly than posteriorly. The scar of such ulcers after healing of course always contracts; but in addition to this, in this particular case there were very extensive adhesions upward and backward from the site of the ulcer, which fixed the stomach to the posterior wall of the abdomen. These adhesions assisted in producing such a deep inversion of the anterior wall of the stomach as to form a septum which extended from the lesser to the greater

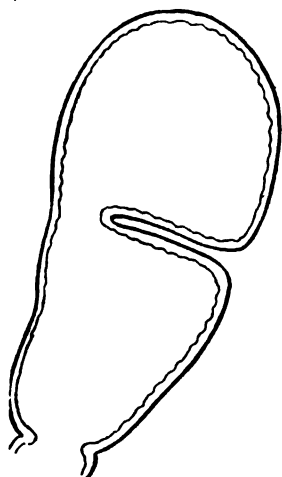


FIG. 2.—Diagram to show the furrow in a horizontal section of the stomach.

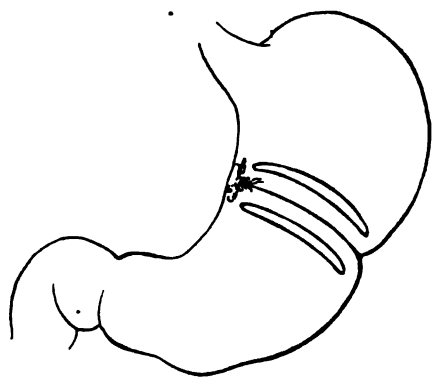


FIG. 3.—The two openings from gaping of the incisions. The two proximal and the two distal margins were sutured together.

curvature, and reached nearly if not indeed quite to the posterior wall of the stomach. The posterior wall of the stomach was not involved. So tense and firm were these adhesions that I nearly missed discovering the real cause of the trouble. It was only when I had divided the adhesions so as to bring the entire stomach into view that I found the real cause of the trouble. An anterior gastrogastrostomy was evidently the best

means by which to relieve the trouble. I thought of a gastropasty, but the fold was so deep and so extensive that I judged that gastrogastrostomy was the more desirable operation.

As to diagnosis, neither Dr. Cohen nor I suspected an hour-glass stomach. We knew of the probable existence of an old ulcer, and therefore of adhesions, but in spite of the patient's youth we had a fear of a possible carcinomatous change engrafted upon the ulcer, especially as there was a tumor obscurely perceptible.

Inasmuch as I did not suspect an hour-glass stomach, I did not test the patient by the now well known means for determining such a possibility. I think it not improbable that a correct diagnosis might have been reached had I done so. One lesson which has been forced upon me by this case is that in every case, especially in younger people in whom there is good reason to suspect an old ulcer, the possibility of an hour-glass stomach should always be considered, and all the measures which may assist in making a diagnosis should be utilized. While operation will always enable us to make the diagnosis, it is in my opinion discreditable to surgery that we should not in every possible case make a correct diagnosis before rather than during and by means of the operation.

THE LIMITATIONS AND POSSIBILITIES OF ELECTRICITY IN THE TREATMENT OF DISEASES OF WOMEN.¹

By B. C. HIRST, M.D.,

Professor of Obstetrics in the Medical Department of the University of Pennsylvania.

The title of this small contribution to the transactions of the society is, I fear, too pretentious. It implies a study of *x*-rays, the ultraviolet rays, and high-frequency currents, with which I have no personal experience, and which will be employed only by specialists in electrotherapeutics.

My object is simply to call attention to the use of galvanism and faradism in a few of the diseases of women, in which more can be accomplished by this means than by any other treatment.

It is not strange that the present-day

¹Read before the Philadelphia County Medical Society, Jan. 25, 1905.

gynecologist looks askance at electricity. Those of us who have been long enough in practice remember only too well the disappointment which followed a trial of Apostoli's methods, the failure of attempts to cure all sorts of pelvic inflammatory conditions, and the futile effort to destroy the embryo in extra-uterine pregnancy by electrical currents. But the swing of the pendulum, as often happens, has gone a little too far. Many of us are neglecting, I think, a most useful treatment in one or two affections which are amenable to nothing else.

In the excellent monograph on Fibromyomata by Bishop, published two or three years ago, there is a fair and convincing section on electricity as a hemostatic agent in the treatment of fibroids in which operation is contraindicated or is not really necessary. It is all the more convincing because Bishop is an enthusiastic advocate of operative treatment, and was one of the first to urge an extension of the indications for it. I had tried electricity myself twelve or fifteen years before, and was one of a committee appointed by this society years ago to investigate the results obtained. I was disappointed in it and gave it up.

After reading Bishop's book it appeared to me that such an uncompromising attitude was prejudiced, and as other cases than fibroids occasionally applied for treatment, in which electrical stimulation was obviously the only means of relief, I installed in my office again a full electrical equipment, including electrodes that could be sterilized as easily as any other surgical instrument. During the last two and a half years this equipment has demonstrated its utility in the following limited number of cases: As a hemostatic in bleeding fibroids; as a stimulant in amenorrhea and sterility, the result of imperfect development or atrophy of the uterus; and to restore tone to a sphincter ani that had been severed, had been unrepaired for many years, and though successfully repaired, remains parietic.

I am not yet prepared to admit that every fibroid of the uterus must be removed. In 195 such cases subjected to surgical treatment under my care there were only seven in which it could be positively stated that death must have ensued without operation—three sarcomatous and four necrotic degenerations. In addi-

tion there was one case of adenocarcinoma of the endometrium, but the association was purely accidental, and there was no causative relation between the two. There were naturally many other complications in my cases, more or less serious, but in none except those mentioned could it be truthfully stated that the issue would inevitably have been fatal without surgical intervention. From personal experience therefore, and from a careful study of others' records, it appears that the conscientious surgeon must frequently see cases of comparatively small fibroids, with no other symptom than metrorrhagia, in which an operation is not required. In these cases, if there is no continued growth, no sign of malignancy, no complication such as cystic degeneration or inflammation of the appendages, I doubt if there is a more reliable hemostatic than repeated applications of a galvanic current 40 to 60 milliamperes, with the positive pole *in utero*. About twenty applications are needed for fifteen to twenty minutes every other day. As an illustrative case: Mrs. L., aged thirty-nine, had had three severe hemorrhages several months apart in the course of a year. The last one had been so serious that she was exceedingly anemic. Her hemoglobin percentage was in the neighborhood of 10, and her heart was feeble and irregular. A gynecologist, called in at this time, urged an immediate operation, stating that unless it was performed by a certain date (on which he was to sail for Europe) she could not survive the summer. This advice was rejected by the family physician, the patient and her family, who felt that an abdominal hysterectomy, in view of the patient's condition, would pretty certainly prove fatal. The following autumn I began treatment with electricity after finding a fibroid no larger than an orange, with no complications and no other symptoms except the metrorrhagia. Twenty-one treatments were given. The patient has had no hemorrhages in the last fifteen months and feels perfectly well. It is unlikely that her small fibroid will cause any more trouble. If an operation is indicated at any time in the future she will return to me for it.

For an atrophied or ill developed uterus I can conceive of no other treatment so rational to stimulate and develop the pelvic organs as faradism and the negative pole

of a galvanic current in the uterine cavity. Two cases may serve to illustrate the possibilities of this treatment:

Mrs. W., married seventeen months; has not been pregnant; has not menstruated at all for a year. Examination showed an ill developed or atrophied uterus. After four treatments a menstrual flow appeared, profuse, and lasting ten days. Conception occurred shortly afterward, and she has recently been delivered of a healthy child at term.

Mrs. B. has had two children; after the second, four years ago, she developed an extreme degree of lactation atrophy. When the baby was weaned, menstruation returned, but was scanty, not lasting a day. Intense headaches appeared with the periods, and grew worse as the menstrual flow diminished in amount and duration. Medicinal and hygienic treatment was recommended, but failed. After six weeks' treatment with electricity a flow was established, normal in quantity and duration, the headaches were relieved, the general health improved, and the patient conceived again six months later. She is now five months pregnant.

There is no necessity for insisting upon electricity as the only means to strengthen a weak sphincter muscle. There is no other treatment to recommend. If the operation for the repair of a complete laceration of the perineum is properly performed in the first place, there is very seldom need for further treatment of any kind. Of late years I have operated on twelve to twenty such cases annually—in half the cases after some one else had failed—and in only two instances has electrical stimulation been indicated: in one woman operated on three times before without success in a period of fourteen years, and in another with two unsuccessful attempts in ten years. In both cases the contractile power of the sphincter was restored.

There is one other indication for electrical stimulation of the uterus, I believe, in the dysmenorrhea of young women with ill developed uteri, after dilatation and curettage have failed to give relief. For the last eighteen months I have used Schatz's metranoicter in such cases in addition to forced dilatation with branched dilators, and my proportion of failures is less than it was. In my last thirty cases there are only two symptomatic failures,

both in young women of a neurotic type with ill developed wombs. I believe that electrical stimulation might effect a cure in these women, but there are two objections to its use: the propriety of any local treatment in young unmarried girls is questionable, and there is danger of breeding sexual hypochondriasis in a neurotic woman by long-continued local treatment. In the very few cases in which such treatment might be justifiable, it would be more likely to afford relief, I think, than any other remedy. The typical case for this treatment would be the married woman with dysmenorrhea and sterility, without tubal or appendiceal disease, who is not relieved by dilatation with branched dilators and the metranoicter. Since using the latter instrument, however, I have not yet had a failure in such cases.

MESOTAN IN THE TREATMENT OF RHEUMATISM AND ALLIED STATES.¹

BY MAJOR CHARLES F. KIEFFER,
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Wyoming.

In 1876, shortly after the discovery of the specific effects of salicylic acid in rheumatism, Drasche, of Vienna, showed that absorption took place after external applications of watery or alcoholic solutions of these drugs, and that they appeared in the circulation and excretions as salicylate of sodium.

In 1883 Unna demonstrated the absorption of salicylic acid through the intact skin. In 1884 Hasenfeld demonstrated that sufficient of the drug could be introduced in this way to cause tinnitus and other toxic symptoms of salicylic acid poisoning.

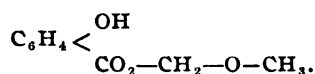
In 1893 Bourget recommended its local use in the treatment of rheumatism, in the form of an ointment with lanolin, oil of turpentine, and lard. Von Ziemssen, a little while later, recommended an ointment very similar to that of Bourget. In 1898 Sterling reports sweating, tinnitus, and digestive disturbances from the use of these ointments.

Mesotan is one of the newer synthetic compounds introduced for the local treatment of rheumatism. The local treat-

¹Special report to the Surgeon-General, United States Army, and published with his authority.

ment, as outlined above, never enjoyed very much popularity, although the oil of gaultheria, particularly in this country, has been a favorite component of liniments and local applications for the relief of joint pains. But the odor of this substance is very unpleasant to most people, and in a few cases causes annoying headaches. Mesotan was evolved in the search for a salicylic acid ester which should not have the powerful and unpleasant odor of gaultheria (methyl-ester of salicylic acid). The attempt was made to replace the methyl ester by the ester of the higher homologous alcohols. Because, as Dreser remarks, the higher one of these homologues boils, the lower is the pressure evolved at ordinary temperatures, and, other things being equal, the less pronounced is its odor. This is the reason why the odor of the amyl ester is noticeably weaker than that of the methyl ester.

Mesotan is the methyl-oxy-methyl ester of salicylic acid. It is a clear, yellowish, oily liquid, with a pronounced ethereal but not unpleasant odor. It is formed by the action of formaldehyde, methyl alcohol, and hydrochloric acid on sodium salicylate. It contains, approximately, 71 per cent of salicylic acid, and its chemical formula may be expressed as follows:



It is sparingly soluble in water, but more freely in oils. Dreser has shown that if 150 cubic centimeters of water saturated with oil of gaultheria be shaken up with 5 cubic centimeters of oil, the oil absorbs 69/70 of the methyl ester from the water. Mesotan, however, has not so marked an affinity for oils. The methyl ester will be taken up in oils 20/70 times as much as in water; mesotan, on the other hand, only 56 times as much or 1/37 of the affinity for fats as the oil of gaultheria. He argues from this that mesotan should have a distinct advantage, clinically, in cases where the skin contains a heavy layer of fat; since the body fats will not absorb it to the extent that they would the oil of gaultheria, but would release it to the deeper tissues, the muscles, and fasciæ. Mesotan is saponified readily by weak alkalis.

Mesotan depends for its action on the absorption of the drug through the skin.

It has been shown that even though it exerts a general effect, it has a still more marked local action. To produce its analgesic effect on a painful joint or muscle it is sufficient to apply the medicament to the overlying skin and cover it lightly with linen or muslin as a protective. It is not necessary, as at first advised, to cover the parts with parchment or with oiled paper, to prevent evaporation and to insure the absorption of the drug. Ruhemann in one of his earlier communications advised that it should be vigorously rubbed in, but the studies I have made on the absorption of the drug show no increase either in the rapidity or the amount of the drug absorbed whether it be rubbed in vigorously or whether it be applied with a brush. More than this, vigorous rubbing predisposes to the production of a local dermatitis which may be very annoying and troublesome, and of which I shall have more to say further on. In order to obviate, in a measure, the tendency to skin symptoms, it has been advised that the mesotan be used in a mixture with equal parts of olive oil. This preparation is efficient and tends to economy in the use of the remedy. In my observations it was found that even greater dilutions were effective, and sometimes desirable. Thus, a 20-per-cent dilution was found to be effective in relieving pain, and was almost as quickly absorbed as the more concentrated solutions. To some people the odor of the olive-oil mixture is unpleasant. I think the mixture made with cottonseed oil is less objectionable. To correct the unpleasant odor of the olive-oil mixture it is commonly advised to add a few drops of the oil of lavender. Benzoinated lard may be used as a substitute for olive oil, and does not interfere with the action of the mesotan. Reichmann advises castor oil, but the odor of this mixture is more objectionable to most people than the olive-oil mixture. Glycerin has also been suggested, but it causes not only a severe subjective sense of burning, but sometimes free vesication. For sharp nerve or inflammatory pains I prefer the pure drug applied over the painful area. For dull, aching pains, as in subacute muscular or aponeurotic rheumatism, I believe the weaker dilutions are better, and the effect is slightly prolonged. In usual cases the drug should be used two or three times daily.

That mesotan, so applied, is rapidly absorbed can be demonstrated by the early appearance of a salicylic reaction in the urine. Experimental researches with guinea-pigs have shown that when this ester is placed on the skin of the shaven abdomen, a reaction is observed in the urine in one hour. It is equally, or more, rapid when placed on the skin of man. Reichmann has found distinct evidence of salicylates in the urine at the end of half an hour. Herschman found the reaction in the urine in from forty to fifty minutes.

In these studies particular attention was paid to the question of the time of appearance of the reaction in the urine, and some rather interesting observations were made. A distinct reaction was obtained in every case in from thirty to sixty minutes. It was found that the rate of absorption varied not only in different individuals, but also in the same person, when applied to different parts of the body. In the fine-skinned, with little subcutaneous fat, the absorption was rapid and the reaction appeared early. In men with heavy, greasy skin, with marked cutaneous and subcutaneous fat, the reaction was always delayed. I believe that, to some extent, the remedy is sequestered for a time by the peripheral body fat. The reaction appeared earlier when the drug was applied to the flexor surfaces of the limbs than when applied to the extensor surfaces. It appeared earlier when applied to the trunk than when applied to the extremities, and earlier when applied to the arms than to the legs. In carefully controlled observations it was found that the length of time to the appearance of the reaction was about twice as long as when the salicylates are taken by the mouth. The average length of time for the reaction to appear when one gramme of sodium salicylate was taken by the mouth was twenty minutes. In the same men the average time for the appearance of the reaction after mesotan was applied to the skin of the trunk was forty minutes.

The test used to determine the presence of a salicylic compound in the urine was ferric chloride. Five drops of a solution of ferric chloride added to a small amount of urine containing salicylic acid, or one of its compounds, produces a deep red color. With ten drops more of the test solution, in the presence of pronounced quantities of salicylic acid a deep purple

color is produced. There was no attempt to make quantitative analyses, excepting that rough tintometric estimations were made.

No untoward effects were observed from the use of the drug. Although systemically absorbed in large quantities, it produces no effect on the stomach or digestion. In a few susceptible individuals slight head noises and ringing of the ears were complained of. The first effect of the application of mesotan to the skin is a slight feeling of warmth and tingling. In a few cases this amounted to a burning sensation quite like that produced by a sharp mustard plaster. Vigorous rubbing in of the mesotan accentuated the burning sensation, particularly when applied to the inner sides of the arms and thighs or the abdomen and groins. The feeling of warmth and tingling was succeeded by a pleasant glow in the parts and the rather rapid disappearance of all pain.

Three trivial skin eruptions, or more properly dermatitis, were observed, and one case with a more pronounced vesicular eruption, following the use of the drug. The very nature of this remedy and the mode of its absorption through the skin would lead one to expect occasional skin irritations from its use in susceptible persons. The skin eruptions observed range from an insignificant vesication to such cases as are reported by Ruhemann, in which the lesions resembled a vesicular eczema and were quite severe. In nearly all of the cases reported the eruption was local and confined to the area of the application of the drug. In a few cases, notably two reported by Pollitzer, the eruption was general; tending to show that it was dependent on the drug in the general circulation. In one case a 50-percent mixture was applied to the elbow; "a vesicular crusted dermatitis" developed, which extended over both arms, the abdomen, and both thighs. In the second case the drug was applied full strength, and a general vesicular eruption followed. Kaiser reports, from Naunyn's clinic, three cases of severe bullous dermatitis. Frankenburger reports one severe case with superficial gangrene. Korach reports a case of general dermatitis with numerous miliary vesicles filled with a watery fluid. This case required two months to heal, and the patient was greatly tormented by the excessive itching. In the cases

under my care no instance of a generalized exanthem was observed. As already stated, three localized eruptions were seen which resembled a mild vesication by mustard. In one case where the drug had been applied full strength, frequently repeated, to the inner side of the thigh for the relief of severe pain in the distribution of the crural nerve, a more marked eruption was observed. It healed in four or five days, and was followed by an itching exfoliation of the skin. All of these eruptions suggested the skin irritations produced by iodoform in susceptible persons. Pollitzer considers them to be analogous to the eruptions produced by this drug.

To prevent this untoward effect of mesotan, several simple precautions should be observed. It has been shown that most of these cases have followed the application of mesotan in full strength. It should, therefore, never be so used until the individual susceptibility of the patient has been learned, but should be applied in the 50-per-cent dilution. The second factor in the production of skin irritation is friction in applying the drug. Ruhemann, who advised vigorous friction in applying the remedy, was also the first to describe

the dermatitis following. He has since come to the conclusion that the rubbing is responsible. The mesotan should be painted on, or at most gently rubbed on with the finger-tips. Some of the cases have arisen from binding impervious coverings over the part after the drug had been applied. It was at first supposed that this measure insured and hastened its absorption, but that is not true. Occlusive dressings macerate the skin and predispose to the drug irritation. In practice here the exposed parts of the body, such as the neck, hands, and wrists, were covered, after the application, with a piece of gauze. For the other parts of the body, pajamas and the bedclothing were considered sufficient. Another reason for some of the skin eruptions is, that mesotan is used in many cases after the skin has already been irritated by such local remedies as mustard and chloroform ointment. Besides these precautions, it is always wise not to continue the application of mesotan too long to the same area, but to choose adjacent spots for successive treatment. It must, however, be remembered that in spite of all precautions eruptions may develop in people with delicate skins,

NAME Whitney George W. RANK Private COMPANY A REGIMENT 114 Inf.

DATE OF ADMISSION April 22nd 1904.

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and in those who present an idiosyncrasy to drug urticaria or dermatitis. Indeed, the internal administration of the salicylates may produce, in the susceptible, an urticaria or even a dermatitis severe enough to progress to vesication.

The therapeutic effect of mesotan depends on its action as a salicylic acid compound; consequently we look for good results, first of all, in the purely rheumatic affections. In truth the good effects of this remedy are seen almost exclusively in this class of cases.

In *acute articular rheumatism* the effect is most remarkable. There can be no question of the curative action of mesotan on rheumatic pains and swellings. Floret goes so far as to say that the remedy never failed him in undoubted cases of rheuma-

tism, and that in articular and muscular affections of a doubtful character its good effect or failure served him as a diagnostic measure. I have treated with this remedy, in hospital and practice at this station, twenty-two cases of acute articular rheumatism of varying severity. For purposes of study, twelve of these received no other treatment than mesotan. The remaining ten had, in addition, salicylates by the mouth. In two cases I was able to record the apparent dispersal of an attack of articular rheumatism. One of these cases (register No. 11,380) was admitted with severe involvement of both wrists, both elbows, and both shoulders (temperature chart No. 1). Twelve grammes of pure mesotan were applied to these joints in the morning and evening of the first and

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second days. The effect was marvelous. The pain disappeared in twenty-four hours completely; in forty-eight hours the temperature fell to normal, although it had been up to 104.8° on the evening of the first day. Slight recurrences of pain in the joints for seven days following were controlled by one application daily of 40 per cent mesotan. The other case (register No. 11,405) was almost iden-

tical in its clinical features (chart No. 2). The remedy proved to be particularly effective in acute cases with involvement of the costal and vertebral articulations. It quieted the severe pain on breathing, and gave these patients a greater measure of relief than any other means I have ever seen employed. The chart of such a case is appended (No. 3, register No. 11,487). This man had an extremely severe attack

NAME Feigler, Henry E. RANK 1st Sergeant COMPANY 2 REGIMENT 11th Inf.
 DATE OF ADMISSION May 23d 1904 REGISTER NUMBER 11487-

with early cardiac involvement. There was a to-and-fro murmur at the mitral and a systolic murmur at the aortic cartilage. The pulse was rapid, arrhythmic, and weak. He suffered extremely from vertebral pain and pain on breathing. In his case mesotan was applied to the precordium and spine. He made a good recovery, without apparent permanent heart lesion, the duration of the disease being sixty-nine days. This was the longest and most severe case in the series. Curiously enough this is a rheumatic climate, although the altitude is great, 6100 feet, the air exceedingly dry, and the rainfall very moderate. Many of the cases observed here are postanginal; they are severe and of prolonged duration. With the ordinary methods of treatment a fairly

large proportion of the cases lapse into slow, chronic illnesses, that require transfer to the Hot Springs Hospital or to another climate to get well. Since using mesotan as an adjuvant to the treatment of rheumatism no cases have needed transfer. Another peculiarity of the cases, apart from the slow convalescence, is the rapid reappearance of joint symptoms and pains when the salicylates are stopped. This necessitates prolonged treatment with many toxic manifestations. It is exactly in these cases where, by controlling the recurrence of joint pains without disturbing the patient's digestion and assimilation, mesotan has given very satisfactory results.

In four cases of monoarthritis observed here, all of them gonorrheal in character,

NAME Stephens Joseph E. RANK Private COMPANY B REGIMENT 11th Inf.
 DATE OF ADMISSION July 1st 1904 REGISTER NUMBER 11566

the remedy was of no service whatever. The same thing is true of two cases of syphilitic joint pains. In one case of gout the pain was controlled, but there was no apparent effect on the disease process. In the so-called "uric acid diathesis" it does no good.

Subacute and Chronic Articular Rheumatism.—Four cases were treated that come under this category. Of these, two were permanently and quickly relieved, one of them being rapidly dissipated (chart No. 4, register No. 11,566). The third was an old case with great thickening of the capsules and ligaments about the joints. In this case the mesotan had only a transient analgesic effect. In the other three cases it was rarely necessary to apply the mesotan more than once daily to give entire freedom from pain for the twenty-four hours.

Muscular Rheumatism and Rheumatism of the Fasciæ and Aponeuroses.—In this class of cases the results were very satisfactory. Particularly was this found true, as Posselt has pointed out, in well developed muscles with thin fascial coverings. Such are the muscle groups in the upper forearm, the arm, and the shoulder-girdle. In acute torticollis and lumbago the effect of the remedy was good. Ruhemann advises the use of mesotan on porous or rubber plaster, with 4 cubic centimeters of the drug to each plaster, when the pain to be treated is located in one group of muscles, as in lumbago. This was found to be a convenient as well as an economical way of using the mesotan.

In these altitudes we see a curious tendency to the development of severe and harassing rheumatoid pains in joints following sprains, contusions, fractures, and luxations. Indeed, the after-pain in many cases is much more troublesome than the original injury, which it follows from one to four weeks. In many cases it is out of all proportion to the injury; it lasts a long time and is rebellious to treatment. Very excellent results were obtained in four cases of this kind—two severe sprains of the ankle-joint, one Pott's fracture, and one dislocation of the shoulder.

Ruhemann has reported the excellent effect of mesotan in rheumatic iritis. I am able to report one such case of a rather severe type. Of course, other means—hot water, atropine, and systemic salicylate saturation—were employed, but I am con-

vinced that the local application of mesotan to the brow and temple notably diminished the pain and shortened the course of the disease.

On the pains of neuralgia the effects were variable. In two cases of trigeminal neuralgia it had an undoubted good effect. We see many cases of supra- and infra-orbital neuralgia here from exposure to the winds. Both of the cases were of this type, and the relief in both was most pronounced. In other neuralgias I could observe practically no good effects from mesotan. In neuritis of the larger trunks it failed entirely. In two cases of sciatica no good effect whatever was observed; neither was there any benefit in one case of intercostal neuralgia and one case of crural neuralgia.

Three cases of *arthritis deformans* were treated with mesotan. In all of them it notably relieved the pain. This was more particularly true of two cases in which the disease was limited to the hands. In the third case, with involvement of the wrists and great thickening and distortion of the joints, the effect was not so good, and in three weeks the patient seemed to have established a tolerance to the remedy. After that it did no good.

Mesotan has been recommended for the arthritic pains associated with and following influenza. No case of this disease has come under treatment here during the progress of this study.

Ruhemann and others have noted the rapid recession of facial erisypelas under local application of mesotan. I was led by these observations to try it in one case. I believe it controlled the pain, but I could not see that it delimited the disease in any way whatever. In this I must agree with Korach, who likewise could not verify these observations. He did notice a marked diminution of the painful sense of tightness in the inflamed area. He thinks the remedy cannot limit the spread of the disease; and I agree with him entirely.

Ruhemann also reports a case of bronchiectasis in which there was profuse, putrid sputum. He states that a few inunctions entirely destroyed the offensive odor. I have no observations bearing on this point.

Tausig reports a rapid curative effect on cases of pruritus and hyperidrosis.

Strasz reports a marked temporary effect on the night sweats of phthisis. For

the first few nights the sweats were entirely controlled, but unfortunately this action was of very short duration. After fourteen to eighteen days, in most cases, the remedy failed to have any further effect. But even this much he considers, and very properly, to be a gain. I have had opportunity to try mesotan in only one case of phthisis with night sweats, and in this one I could not verify the observation of Strasz.

Von Crieger and Gröber report marked amelioration of pain in a case of advanced carcinoma of the mediastinum with great swelling and pain in the arm. The remedy has also been tried by them in lead neuritis, but without any good results. Posselt and many others recommend its use in pleuritis of "rheumatic" character, and for the relief of pain in dry and chronic pleurisies. On all of these points I have had no experience.

I have used mesotan in seven cases of acute gonorrheal epididymitis and orchitis. The whole scrotum was painted with the drug in full strength. The effect was remarkably good. I know of no other means that will give the prompt and lasting relief from pain, which followed in all of these cases. I am not sure that it directly influenced the disease itself, but the analgesic effect was very satisfactory.

Various observers have tried to energize the action of mesotan. Strasz endeavored to intensify its action by producing a preceding artificial hyperemia by means of friction, heat, or dry cupping. Apart from the unquestioned good effect that these measures of themselves have on rheumatic lesions, I doubt very much whether they do increase the effect of this particular drug. They would undoubtedly increase the liability to the formation of a mesotan exanthem. I do believe, however, although my experience on this point is so small that I speak with diffidence, that the absorption of mesotan and gaultheria both may be hastened by static, or better still, high frequency, discharges into the skin after the application of the remedy. Whether such an action is to be desired, in view of the fact that absorption progresses uniformly and rapidly, is to my mind a question.

Mesotan has no other remedial value than that of the salicylates. But while the different preparations of salicylic acid by the mouth exert only a systemic effect, it

seems clear that not only does mesotan have a systemic effect, but it also has a direct local effect, probably on the nerve endings in the diseased areas. In addition it has a local derivative effect. It is a valuable remedy to assist the internal administration of the salicylates, or to replace them when they are not well borne by the stomach. Its use is limited to the purely rheumatic affections, and some few diseases of serous structures. It has none of the toxic effects of the salicylates administered internally. Its one untoward action is the tendency to produce a local or general dermatitis, which should always be borne in mind, and against which the simple rules already given are ample safeguards.

I desire to express my thanks to the Surgeon-General for furnishing the mesotan with which these studies were carried out.

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THE TREATMENT OF ANTERIOR GONORRHEA.

By S. G. BROWN, M.D.,
 Montreal, Canada.

Occasionally we find among those who have contracted this disease some who in place of using the advertised nostrums for two or three weeks come at once to a physician. In these cases it is quite possible to abort the more acute painful symptoms, and to cut short the disease. The treatment I describe, when carried out in a rigid manner from the start, is followed by the most gratifying results, though it may not be practicable in patients with hypersensitive urethras.

The treatment is as follows:

1. The anterior urethra is thoroughly cleansed with a solution of boric acid by means of an irrigator, care being taken that none of the fluid goes beyond the compressor.

2. There is provided a syringe with a conical nozzle having a capacity of 6 drachms. Night and morning the anterior urethra is distended six times by means of this syringe, containing a solution of potassium permanganate (1:3000), to which has been added 10 per cent dark fluid extract of hydrastis. Four and a half ounces of this solution is used with each treatment. Internally forty grains of salol are given daily. Rest, a simple diet, and large quantities of water are desirable.

This treatment is not adapted to those whose occupation prevents a reasonable amount of bodily rest. When applicable its beneficial effects are observed in two or three days. In eight to ten days there will be in the urine neither pus nor gonococci.

In chronic gonorrheal anterior urethritis my results have been as follows: Eleven cases were discharged inside of

four weeks, four cases in five weeks, one case in six weeks, and one case was lost sight of.

The method employed was as follows: Once daily, for ten days, by means of a fountain syringe and retroinjector, the anterior urethra was flushed out with a warm saturated solution of boric acid. Immediately thereafter as large an endoscope as the meatus would admit was passed, and the anterior urethra was thoroughly swabbed with a mixture made up of equal parts of fluid extract of hydrastis, distillate of hamamelis, water, and glycerin. In more obstinate cases a swabbing every second day with equal parts tinct. benzoin co. and balsam Peru in the morning was of great service.

In none of the cases recorded has any recurrence shown.

THE RATIONAL TREATMENT OF TYPHOID FEVER.

By W. R. LASTRAPES,
 Opelousas, La.

The literature of typhoid fever has become so very extensive in recent years that in presenting this article I am quite cognizant of the fact that the ground has been fully covered time and time again by practitioners of medicine of marked ability and wide experience. It is, however, in my judgment a matter of such vital importance and magnitude that no amount of discussion in our journals can possibly be out of place or uninteresting. I therefore feel amply justified in directing attention to what I regard as the most salient points to be considered, and the most effective measures to be employed, in the management of this much-dreaded and dreadful malady. I believe that a thorough appreciation of its etiological and pathological features is absolutely essential to the establishment of wise therapeutic measures. It has been my observation that, in the journals especially, too little attention and consideration have been given to those points. I shall, therefore, without claiming to advance any new theories or ideas, briefly call attention to them.

We are informed by bacteriologists that typhoid fever is due to a specific germ, the *bacillus typhosus* (the bacillus of

Eberth). This organism is found in the blood and lesions. As regards the mode of infection, most observers are of the opinion that the atmosphere is never impregnated with the fever germ, the poison making its entrance into the system by means of infected water, ice, milk, etc. The germ can readily be destroyed by thorough disinfection of the excreta, the best agents for that purpose being heat, bichloride of mercury, and carbolic acid, precedence being given in the order named. In this connection it is only just and proper to state that such eminent investigators as Bouchard, Liebermeister, and Landouzy have held that the air is a positive means of infection by typhoid fever. Landouzy has reported two cases that are intensely interesting. The first was that of a person twenty-five years of age, who was the only one affected in a family of ten, whose food, drinking-water, and hygienic environments were all that could be desired, and therefore the usual mode of infection was absent. It was discovered, however, upon careful investigation, that the ventilating pipe of a public water-closet opened half a yard below the window of his bedroom. The second case was exceedingly similar, in fact almost identical. A young lady, the only one attacked in a family of five, had been occupying a room beneath the window of which the ventilating pipe of a privy terminated.

Bouchard relates a case of infection directly due to emanations from the atmosphere, which is certainly well worthy of serious consideration. A man, who was the victim of an attack of typhoid fever in a certain place, returned to his native home, where there had been no manifestation of the disease for many years. His excreta were put upon a "fumier," which was subsequently removed by five men. Four of these men were attacked by typhoid, and the fifth suffered with intestinal and splenic disease. The evacuations of these patients were thrown upon another "fumier" about one year later by two men, who became the victims of undoubted typhoid fever.

As regards the pathological anatomy of this disease, the specific anatomical lesions are always present, as has been demonstrated by a post-mortem examination in every case of which there is any

record. As far as I am aware, there is practically no difference of opinion concerning the theory that the poison attacks the intestinal canal primarily, inducing the well known changes in Peyer's patches. It is, however, highly probable that the blood, and through it the entire system, is almost if not simultaneously affected.

What, then, is the pathological condition found in the intestinal canal? Peyer's patches are indurated and thickened, and it is not infrequently found that the entire number is involved. Then follows the sloughing of the solitary glands, which sloughing does not necessarily involve all the glands, since in some cases the morbid changes are arrested prior to the stage of necrosis. Ulceration, which is entirely dependent upon sloughing, ensues, the sloughs gradually separating, ulcers of various sizes remaining. This is followed by cicatrization, and, as is well known, in some cases by perforation.

Now as to treatment. Upon what should it be primarily based, and what are our most reliable and successful therapeutic measures? This is unquestionably a disease in which the vigilance, skill, and patience of the medical attendant as well as the nurse are put to a severe test. It has been truly said that a nurse who was qualified to successfully handle a case of typhoid fever was competent in every respect to pursue her honorable and noble calling; and fortunate, indeed, are those who enjoy the benefit of trained assistants. Their very presence in the sick-room is a source of fortitude and hopefulness to the patient, as well as a genuine encouragement to the physician. How gratifying it is to the latter to know that his patient is under the never-ceasing care of a skilled nurse, and that his directions are being scrupulously followed!

I am fully aware that a great many are of the opinion that the antiseptic treatment of this disease plays quite an unimportant part, precedence being given to nutritional measures, hygienic environments, antipyresis, etc. In my opinion the administration of antiseptic drugs should claim our first attention, constituting the most important and effective part of the treatment, and being, therefore, imperatively required from the very outset of the disease. And I regard it as logical practice to continue with the

employment of antiseptics practically throughout the disease, or at least until such time as there is an evident and decided amelioration of symptoms. I believe that by a thorough and continuous disinfection of the intestinal canal we hamper, to no little extent, the progress and virulence of the specific bacterial poison, thereby fighting the enemy with the proper weapon, and paving the way for the prevention, to a considerable extent, of serious complications.

The initial treatment of this disease, as in all fevers, consists in administering a good purgative, followed usually by a saline. Calomel is always effective, and besides producing the desired purgation, tends to lessen the severity of the symptoms by exerting its antiseptic action on the intestinal canal.

There is such a variety of drugs possessing antiseptic properties that it is not in the least difficult to make a selection. Any of the following may be employed with benefit: Thymol, guaiacol carbonate, carbolic acid, iodine, salol, salicylate of bismuth, and sulphocarbonate of zinc. A very reliable combination is carbolic acid, bismuth subnitrate, and simple elixir, with the addition of deodorized tincture of opium whenever the intestinal movements are excessive and abdominal pain severe. This mixture is easily retained—in fact, it exerts a beneficial influence upon the stomach, frequently preventing nausea and vomiting, and thereby rendering valuable assistance for the reception and retention of food. When diarrhea is absent, as is sometimes the case, there is, of course, no indication for the employment of the bismuth and opium.

In producing intestinal antiseptis we frequently observe that the tongue rapidly becomes clean and moist, and remains so; tympany is absent, or if present, quickly diminishes; diarrhea and delirium are markedly controlled; and the temperature declines to a point where we can readily dispense with the use of antipyretics.

As regards other considerations of treatment, next in importance to intestinal antiseptis is nutrition. The diet should be of a liquid character throughout the disease, and for a period of ten days at least after convalescence. Milk is doubtless the best food, but it will be observed

that it will not infrequently be rejected. I have, however, often seen trouble with milk overcome by the addition of a little French Vichy water. An excellent rule to adopt is to withdraw any food or medicine against which the stomach rebels. We should always bear in mind that a person suffering with typhoid fever has to deal with an exceedingly formidable antagonist, and to keep the stomach in proper condition should be a matter of serious concern. Other suitable articles of food are beef tea, mutton and chicken broth, soft-boiled eggs, and egg water. Egg-nog and milk punch are likewise ideal foods in typhoid fever, and whenever well borne should be administered from the beginning of the second to the end of the fourth week. During this period the general system, and particularly the heart, is often in urgent need of stimulation, as well as nourishment, and to meet that indication probably no more effective resources are at our command than milk and whiskey. Some prefer to give them separately, but it seems to me to be decidedly advantageous to the patient to combine them. Brandy is an excellent stimulant, and should always be used when whiskey is not tolerated. As to the amount of stimulation required during the twenty-four hours, no fixed rule can be laid down; but in the majority of cases one-half ounce of whiskey, or a little less of brandy, every three or four hours, will be quite sufficient for an adult. In this connection it is proper to state many hold that regular and systematic alcoholic stimulation is indicated only in severe cases of typhoid fever. With this view I readily concur.

When we come to the question of medicinal agents as stimulants, I think the opinion is almost unanimous among physicians that strychnine is our most effective cardiac and general stimulant. We employ it in typhoid fever, more especially on account of its direct and positive effect on the cardiac muscle and intracardiac ganglia, but, as is well known, it also exerts a powerful influence on the digestive apparatus and the nervous system; so that I consider it a sensible practice to administer the drug during almost the entire course of the disease. It should be given in doses of 1-60 to 1-30 of a grain every five or six

hours. Digitalin and nitroglycerin are also valuable cardiac stimulants, but, generally speaking, it will not be found necessary to employ them. To combine the three seems sometimes to add to their therapeutic efficiency.

In considering the question of the reduction of temperature, which is certainly an important matter, there is still, apparently, considerable difference of opinion as to the use of the many agents at our command for accomplishing this result. Water is undoubtedly our safest antipyretic, and even if it does not always produce antipyresis, it exerts a highly beneficial action on the skin and nervous system. By that action it subdues to a considerable extent undue restlessness and delirium, has a genuine tonic effect on the general system, promotes free action of the skin, and relieves the kidneys and heart of some of the extra work they are required to perform. Cold and tepid sponging I have found quite as productive of good results as the cold bath. There are so many objections to the employment of the bath that I am at a loss to know why it is so frequently employed, to the exclusion of sponging. The latter is certainly more agreeable to the patient.

The internal use of water is also of great benefit. To allow the patient plenty of water is not merely an excellent antipyretic measure, but is decidedly refreshing and humane. Large draughts of water flush out the intestinal canal and kidneys, and thus greatly assist in ridding the system of poisonous material. As regards the use of the coal-tar derivatives and other antipyretic drugs, I must confess that I cannot agree with those who claim that they have such a depressing effect on the circulatory system. It cannot be denied that acetanilid and antipyrin depress the heart, but such is by no means invariably the case; and when they do, if we support the heart with strychnine, digitalin, or caffeine I cannot understand how much harm to the cardiac muscle can result. In fact, it is neither wise nor necessary to administer acetanilid alone, and caffeine should always be given with it. I never employ antipyrin in typhoid fever, having a decided preference for acetanilid, because of the fact that its effects are more lasting. I have very recently had occasion to con-

firm the opinion expressed above. In a case under my care, in which the temperature showed a strong tendency to remain at a high point, acetanilid, quinine, and phenacetine were employed exclusively to reduce it as often as necessary, and not once were any untoward effects upon the circulatory system observed. Quinine is of great value in typhoid, and is especially so in cases occurring in malarial districts. As an antipyretic, it should be given in doses of fifteen or twenty grains, repeated p. r. n. We have an additional advantage in using this drug, since it acts favorably on the blood, and also as a general tonic. As a matter of course, its tonic effect is greater when exhibited in smaller doses than above mentioned.

In taking up the question of the complications of typhoid fever I shall be brief. It is probably true that more so than in any other disease they constitute the chief dread of the physician. The following picture is fortunately of rare occurrence: The temperature is under perfect control, the appetite is good, the kidneys are acting nicely, the evacuations are not too frequent, assimilation is all that could be desired, and the patient is resting easily—in a word, all symptoms are highly favorable—when, with a suddenness that indeed surpasses the “clap of thunder in a clear sky,” we have the awful spectacle of a profuse intestinal hemorrhage. What should be done? Morphine ($\frac{1}{2}$ grain) and atropine (1-100 grain) should at once be administered hypodermically, followed by the fluid extract of ergot or ergotin, which should be repeated every hour or two, according to indications. At the same time the application of cold to the abdomen should be made, as this is sometimes of undoubted benefit. If perforation and peritonitis should unfortunately occur, morphine hypodermically, hot applications to the abdomen, and prompt stimulation should be used. After these measures surgical intervention, in the light of recent experience, is apparently the proper procedure.

In conclusion, it should always be borne in mind that proper ventilation, light, cheerfulness, and cleanliness are effective adjuncts, and go far toward producing a favorable termination of the case of typhoid fever.

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Leading Articles.

RECENT INVESTIGATIONS WHICH GOVERN THE INTERNAL USE OF ALKALIES AND ACIDS.

For many years after the classical researches of Beaumont upon gastric digestion very little advance was made in our knowledge concerning the movements of the stomach and the action of the pylorus. Laboratory investigators without number carried out a host of researches upon the influence of real and artificial gastric juice upon various articles of food; the great majority of these studies being concerned with the changes which take place when hydrochloric acid, pepsin, and a proteid were brought together under a proper temperature in a test-tube. With the publication of Pawlow's researches, which have certainly marked another epoch in our knowledge of gastric movements and digestion, additional stimulus has been given to the study of this important subject, and as a result we have before us to-day certain facts which very materially modify our previous conceptions concerning it.

Among the American investigators who within the last few years have done much in this line there is perhaps no one who has made as interesting contributions as Cannon, of Boston, and he has recently given us in the *Journal of the American Medical Association* a valuable summary of his own work, and that of several others who have worked in the laboratory, or at the bedside. From these investigations it is more evident than ever before that the function of the pyloric sphincter is quite as important in the carrying out of the digestive processes as is the gastric juice. It has been proved that the presence of food in the stomach reflexly causes a contraction of the pyloric sphincter, and this contraction persists until a sufficient quantity of free acid has been secreted in the stomach, when as a result of the presence of this acid the pylorus is opened and a portion of the acid chyme finds its way into the duodenum. No sooner, however, does the duodenum recognize the presence of an acid mixture than there is a reflex contraction at the pylorus, so that the opening is once more closed, and simultaneously there is a flow of the alkaline secretions of the pancreas which neutralizes the acid, so that, within the first few inches of the stomach, the acid chyme no longer exists as such. With the gradual reaccumulation of acid in the stomach contents and the gradual decrease of acid in the duodenum, there is for a second time a gradual opening of the pylorus in order that the process already described may be repeated, and in this way certain articles are retained in the stomach, and others which require little gastric digestion and much intestinal activity are speedily brought into the duodenum. In other words, starches, which are but little affected, if at all, by the stomach, but which nevertheless cause a rapid secretion of gastric juice when they enter this viscus, are speedily passed into the duodenum for pancreatic digestion; whereas proteids, which are normally digested in the stomach, combine with a large part of the acid secreted, and therefore are retained for complete digestion until the chyme becomes so acid that the pylorus once more undergoes relaxation.

The process in its entirety, however, is by no means as simple as the preceding sentence would indicate. It has been proved that on the entrance of the acid

contents of the stomach into the intestine the mucous walls of the bowel develop a secretory stimulant called "secretin," which is absorbed into the blood and carried to the pancreas, where it stimulates the flow of pancreatic juice. When a sufficient flow of this juice has taken place to neutralize the acid, this secretory excitant is no longer formed and the flow diminishes. In addition to this influence the presence of acid in the intestine increases the flow of bile and of the intestinal juices. Thirdly, these intestinal juices contain a substance known as "enterokinase," which activates the ferments in the pancreatic juice, or, in other words, converts the zymogen of this fluid into trypsin.

Aside from the interest which these physiological researches possess, it seems to us that they also have a very considerable bearing upon the administration by physicians of acids and alkalis in conditions of so-called indigestion. It is evident that by the administration of hydrochloric acid we may, instead of aiding gastric digestion, on the other hand cause the speedy passage of foodstuffs into the intestines ordinarily digested in the stomach, and conversely, the use of alkalis may delay passage through the pylorus, and so, in one sense, interfere with the action of the intestinal juices upon carbohydrates. This is a possible explanation of the fact that pepsin and hydrochloric acid often seem to do good in cases of indigestion which depend upon faulty care of carbohydrate foods. In other words, these substances do not directly aid in the digestion of carbohydrates, but indirectly enable them to speedily enter the intestine, where the pancreatic juice can promptly deal with them. It must be evident from what has just been said that it is not a question of lack of gastric secretion which is to be considered alone in many cases of dyspepsia, but that the subject is much more complex and must receive the attention of every careful practicing physician and of every modern physiologist.

ALCOHOL AS A FOOD.

The title of this editorial note has been printed so often at the beginning of original researches, editorials, and correspondence that our readers are probably

surprised at our using so trite a term. The mere fact, however, that it is so trite indicates that the subject to which it refers is still being discussed, and that those who know most about it are far from having reached definite conclusions. Our attention is once more called to it by an original research reported in the *Lancet* of October 22, 1904, in which Dr. Goddard, after some preliminary remarks in regard to the early investigations of Liebig, Lallemand, Anstie, and others, proceeds to report the result of a research which he carried out with the object of reaching some conclusion concerning the question at issue. As a result of his work, which was performed upon dogs, he concludes that in *small doses* alcohol is most undoubtedly a food, but that when large doses are taken, about 50 per cent of it is excreted from the system, and under these circumstances, of course, all of it is not a food. Even those who have reached conclusions somewhat different from the ones we have just named have expressed the belief that if alcohol is not a food in the sense that it adds force or tissue to the body, it is nevertheless of value in that it is substituted for foodstuffs or body-tissues whenever there is a tendency by reason of disease to excessive oxidation processes in the body; or, to put it in a somewhat homely way, alcohol given to a patient in whom tissue waste is excessive lends itself to the combustion processes and so saves the tissues. It is on this basis that many physicians for years have administered alcohol in the treatment of the acute infectious diseases. Dr. Goddard's paper is not sufficiently exhaustive to be considered as an epoch-marking contribution to this subject, but as additional evidence to that which has already accumulated it seems to us of value.

THE EFFICIENT DOSE OF DIPHTHERIA ANTITOXIN.

The profession is learning every month that the dose of diphtheria antitoxin is not to be measured in cubic centimeters or units, but that it is to be given for effect, regardless of the dose; that little children do not require smaller doses than grown persons, but, on the contrary, often require larger doses because they are more susceptible to the infection, and it is a

well-known fact that especially large doses are required in the nasal and laryngeal forms of the disease. Very recently we have once more called the attention of our readers to the value of the intravenous injection of diphtheria antitoxin in very malignant cases, and we are now interested in the report of a case by Dr. Sutherlin, of Shreveport, La., in which he gave to a woman of twenty-six years no less than 498,000 units. The largest amount given in any one period of time was given on three consecutive days, when she took 32,000 units each day, or 96,000 altogether. Recovery took place. During the time that the woman was ill her infant of eighteen months was given 500 units as a prophylactic, the husband 2000 units, the nurse 1000, the mother of the patient 2000, and the attending physicians 4000. The servants in the house also received prophylactic doses, and none of them were taken ill with the disease, but some time later the husband developed a very mild attack. The average dose that the patient received was 4000 units four times a day. We mention this case, which is reported in the *Medical Recorder*, not so much because we believe that these very large doses are generally advisable, but because the case illustrates the important point that large doses are often required in virulent infections, and also because the case serves to illustrate the point we have named, that the serum is harmless even when these extraordinary amounts are injected.

THE USE OF HEAT IN THE TREATMENT
OF NERVOUS EXCITATION
AND SPASM.

With the introduction into medicine of a considerable number of drugs which act as more or less powerful sedatives to the nervous system the profession has drifted away from the employment of the local application of heat and cold for the purpose of diminishing nervous irritability or muscular spasm arising from this cause. As a matter of fact, in a goodly proportion of cases, local manifestations of nervous irritability can be entirely allayed by the proper use of heat and cold. Wryneck or lumbago following exposure, or neuralgia due to the same cause, can often be relieved by hot applications with-

out the administration of any drug. So, too, various forms of facial spasm can be temporarily arrested by hot applications. One of the most useful applications of heat for the relief of nervous irritability is its employment for diminishing nervous restlessness and overcoming insomnia due to this cause. Patients suffering from insomnia are so prone to develop the drug habit that every measure which can possibly produce sleep should be instituted rather than the giving of a hypnotic drug, and a warm pack given by a skilful attendant at bedtime will often act as well as a moderate dose of some somnifacient remedy.

Still another valuable application of heat in a similar condition is the employment of a hot pack for the relief or even the cure of a child who is suffering from severe chorea. Under these circumstances the heart is not infrequently diseased, and therefore the administration of chloral seems contraindicated. Further than this, the use of chloral cannot be continued day after day for considerable periods of time. A child placed in a warm pack at bedtime not infrequently ceases its choreic movements and passes into a quiet sleep while still in the pack. Usually, however, it is wise to remove it from the pack after it has been continued for half an hour to an hour, and roll it into a dry blanket, and let it enjoy the sleep which is already creeping over it. This method, which is quite popular with some English practitioners, has not received in this country the amount of attention which it deserves, partly because persistent chorea which disturbs sleep is not as commonly met with here as it is in England.

Our attention has once more been called to the matter by an article by Dr. Hollopeter, of Philadelphia, who describes a method somewhat different from that which we have named. He advises that the child be placed in a bath at a temperature which will not produce nervous shock either by heat or cold. Here it remains in water from 90° to 96° perhaps for an hour, or even for two hours, twice a day. Personally we prefer the employment of the hot pack in the way that we have described, but Hollopeter claims that he has used the method described in a large number of cases with such signal success that he has come to have great confidence in it.

URINE SEGREGATION.

The great surgical importance of securing the secretion of each kidney for chemical, bacteriological, macroscopic, and microscopic examination before deciding upon major renal operations was recognized long before any practical means were devised by which this end might be attained.

With the introduction of the catheterizing cystoscope such separation became practicable in the majority of cases when the instrument was used by one expert in its handling. Although these instruments have been enormously improved and have been so reduced in price as to have become somewhat popularized, it still remains true that even in large centers there are few surgeons sufficiently skilful in the use of the instrument to successfully catheterize both ureters in the male, and that such catheterization in individual instances becomes impossible even in the hands of the most expert.

It follows from this that the introduction of an instrument simple in construction, easily sterilized, readily introduced, and in the main efficient, is greatly to be desired. The well-known Harris segregator in part fulfils these requirements, but there have been recently devised several instruments which are sufficiently satisfactory to justify a much wider popularity than has yet been accorded them.

The general principle of these instruments is based on the formation of an artificial septum in the bladder, this septum passing between the two ureters and fitting closely to the bladder base. From either side of this septum there are conducting channels which empty into test-tubes. The instrument is made in the form of an ordinary sound of moderate caliber. By means of a screw handle after it has been introduced into the bladder a rubber diaphragm is opened up, the base of which is so jointed that it accommodates itself to the shape of the bladder, and on moderate pressure effectually divides this viscus into two chambers. The instrument can be introduced by any one who can skilfully pass a sound. It can be left *in situ* for a long period, thus enabling the collection of enough water for a careful and complete examination.

does not expose the patient to an

ascending renal infection, and is applicable to many cases in which ureteral catheterization is quite impossible. It cannot be claimed that the two urines thus collected are separated absolutely from each other either microscopically or bacteriologically, but for practical purposes the macroscopic and chemical separation is sufficiently distinct to enable the surgeon to come to satisfactory conclusions.

It is well known, for instance, that a diseased kidney, indeed one which without disease is simply misplaced, gives a lower percentage of urea and chlorides than does the healthy organ. Of the various instruments of this type, that devised by Catlin is preferable to the instrument suggested by Luis, while a further modification by Boddaert, having for its ground a more flexible base and therefore more complete adaptation to any shape of bladder, seems distinctly desirable.

A CONTRIBUTION TO THE SERUM
THERAPY OF SYPHILIS.

Under this caption is published in the *New York Medical Journal and Philadelphia Medical Journal*, volume lxxx, No. 26, an article which brings to those who have carefully followed investigations in regard to the nature and treatment of syphilis a sense of dazed wonder. The author, as though he were casually calling attention to a universally known fact, states that in 1901 the bacillus of syphilis was isolated and successfully cultivated upon artificial media. Starting with these elusive bacteria he projected and carried out a series of laboratory investigations having to do with the vaccination of animals and the clinical trials of their serum, noting that it is not wise either to detail the preliminary work or to burden the reader with the results of numerous experiments that finally led up to the production of an antisyphilitic serum. Though the principle that the great are modest is thus again illustrated, the author has not taken into consideration the fact that even the routine of his laboratory work would be a revelation to the profession, which still believes that the chimpanzee and perhaps one other animal are the only ones subject to the inoculation of syphilis. The discussion of the theo-

ries that bear upon bacteriolysis *in vivo*, though not illuminating, shows at least a knowledge of the most recent fad in phrasing and terminology. Some cases of syphilis treated by the alleged serum are stated to be fairly representative of about one hundred similar ones. The first patient, who was stated to have had a typical chancre on his tonsil with involvement of the submaxillary and postcervical glands and those of the elbows and groins, and a secondary eruption just beginning to appear through the skin over the chest and back, in the next three weeks received five injections of the vaguely described serum, with complete cure of his lesions. Perhaps the most astounding feature of this case is the fact that subsequently the reporter tested the cure by mixing a drop of this patient's blood with a pure culture of the bacillus of syphilis without observing agglutination or clumping even after prolonged contact.

The second case reported suffered from five chancres, buboes of the groin, and mucous patches in the roof of the mouth. After eight injections, continued during a period of about two months, it was found that the bacillus of syphilis still agglutinated by the blood test. Thereafter the treatment was continued until this interesting test proved negative.

The delight of several physicians who watched this case is properly set forth by the reporter, as is also the proposal of one of them that the blood of this patient should be injected into criminals for the purpose of learning whether or not syphilis had really been cured. This interesting experiment, however, proved impracticable, though it is noted that the patient failed to transmit his disease under favorable circumstances subsequently.

It is somewhat depressing to note that in the three cases treated at the State Hospital of Blackwell's Island the curative effects were no greater than might have been observed under ordinary supporting treatment. The reports of some subsequent cases are so incomplete that no conclusion can be drawn from them, though it is perhaps in accord with the general tenor of the article to find an apparent cure of a case of locomotor ataxia.

On general principles the publication of such contributions as this, inferring if not actually reporting astonishing results

from the administration of an unknown medication, the preparation of which is based upon premises obviously untrue and absurd, is, to express the matter mildly, highly undesirable, though the author should be thanked for calling attention to certain facts concerning which even the most distinguished bacteriologists have been in entire ignorance, not the least startling of which is the identification and cultivation on artificial media of the syphilis bacillus.

Reports on Therapeutic Progress

HYDRASTIS—SOME OF ITS THERAPEUTIC USES.

In indorsing hydrastis as a remedy STEWART states in the *Journal of the American Medical Association* of November 5, 1904, that many patients will come complaining of a poor appetite, slight nausea, sometimes vomiting, and catarrhal and subacute indigestion. A proper counsel on diet and hygienic rules is of first importance; then give from one to six drops of fluid extract of hydrastis in water one hour before each meal and at bedtime. If there is no organic impairment of the mucous membrane decided results will follow. If a case of enterocolitis refuses to yield to ordinary treatment, he says, try small doses of hydrastis or hydrastinin at frequent intervals until results are obtained. It can be combined with other remedies.

For local use the glyceritum hydrastis is probably the best preparation. It is productive of excellent results in vaginitis and some forms of leucorrhœal discharges, but not in the acute stages. It acts best in subacute or chronic conditions. Chronic or prolonged specific urethritis will benefit greatly by diluted solutions in injection or by direct application. A spray of the glyceritum hydrastis in three or four parts of water greatly reduces chronic nasal catarrh if systematically used. In fact, it is a remedy that, while not infallible, is too much neglected, and should not be overlooked for the newer *materia medica*. Most authorities recommend much larger doses of the various preparations than have been indicated in this paper, but the writer's experience shows better results with small doses at freque

intervals. Large doses are liable to produce nausea, vomiting, abdominal discomfort, or diarrhea.

Hydrastininæ hydrochloras in doses of from one-fourth to one grain is an excellent remedy to control menorrhagia, but is slow in its first effects. It has a more prolonged effect than ergot. It is also recommended in epistaxis, hemoptysis, hematemesis, and hematuria. It is a remedy that promises much for the future, and as reports of its use are published positive facts may be deduced. Do not use it in pregnant women except with the greatest caution, as it is liable to induce abortion.

Some prefer the use of hydrastin as representing the effective virtue of the drug. The impure hydrastin may do so, but the chemically pure hydrastin will not give the same effects as those obtained from the fluid extract. Pure hydrastis is given in doses of from one-eighth to one-third grain. While hydrastis is among the oldest remedies, it is probably too little used, too little understood, and is neglected. If this paper will serve to give an incentive to its further investigation and report it will accomplish the object of its production.

POISONING BY WOOD ALCOHOL.

The fact that a number of deaths have resulted recently from drinking cheap and factitious whiskey serves to emphasize the importance and great danger of using methyl (wood) alcohol as an adulterant.

Wood alcohol is used primarily as a solvent, but it can be employed in place of ethyl (grain) alcohol wherever the latter is called for or specified. Within recent years advantage has been taken of its solvent properties, and it has been substituted for grain alcohol in the preparation of flavoring extracts, tinctures, Jamaica ginger, bay rum, Cologne water, witch-hazel, as well as for all kinds of official, domestic, and proprietary remedies, until now its use has grown to alarming proportions. The chief reason for this seems to be the expense. Wood alcohol is free from tax and sells for about fifty cents per gallon, while grain alcohol is taxed and sells for about \$2.60 per gallon. Furthermore, because of the inexpensiveness of wood alcohol it is sought by those who

desire a cheap debauch, and its results are frequently disastrous. It is also in demand for drinking purposes where ethyl alcohol cannot be obtained. For example, in the Indian Territory, where the sale of grain alcohol is prohibited by the government, the yearly number of deaths from drinking wood alcohol is comparatively large. In the purified or deodorized form, and sold under the names "Columbian spirits," "Colonial spirits," and "Eagle spirits," its taste and odor are not as disgusting as in the unpurified article. It can, therefore, be added to a preparation containing a small amount of grain alcohol without ready detection. Upon this basis it is used to adulterate whiskey, and the results we know. Poisoning may occur as the result of inhalation of the vapor of wood alcohol. This occasionally occurs in manufactories where this form of alcohol is used very extensively as a solvent; it is, therefore, the custom in such factories to admit a great deal of fresh air to the workrooms in order to prevent accidents. Symptoms of poisoning have been known to follow the absorption of methyl alcohol through the skin; for example, after bathing, sponging, or rubbing with it, and after the application of methylated liniments.

Methyl alcohol is distinctly a poison. The symptoms are, first, mild intoxication, later followed by severe headache, marked pallor, gastric pain, gastrointestinal irritation, retching, dilated pupils, partial or complete blindness, paralysis of the legs, dyspnea, delirium, unconsciousness, stertorous breathing, collapse, and death. But recovery may follow, particularly if the dose has been small and the individual is capable of resisting the action of the poison for a number of days. An almost constant feature of this form of poisoning is the toxic amblyopia—retrobulbar neuritis—which, if the patient survives, usually results in partial or total blindness. A cystitis is very apt to follow this form of poisoning. It is not uncommon to find this affection among those who work day after day in the vapor of methyl alcohol. The fatal dose is probably between four and eight ounces. Complete nerve atrophy (optic nerve) has been known to follow the ingestion of from two to five drachms. But wood alcohol or preparations containing it are generally taken in much the

same way as preparations of grain alcohol—i.e., in small amounts and at frequent intervals—so that it usually happens that a pint or even a quart of the fluid has been taken, and with a fatal result. The fatal period is from a few hours to three days, depending on the quantity taken. If recovery ensues, it is generally not complete for several weeks or months.

The post-mortem appearances are as follows: Rigor mortis is usually present; skin very pale, but sometimes livid; marked congestion of the mucous membrane of the stomach and duodenum; ecchymoses may also be found dotting the mucous surfaces of these organs. The vapor of wood alcohol is often perceptible in the stomach contents. The liver and spleen are congested and very friable. The kidneys are congested, showing pin-point hemorrhages. The bladder is congested, and an odor of wood alcohol is in the urine as in the bladder. The brain is edematous; the blood dark and very fluid. The pathological changes which result in death in these cases are not known, although rapid nerve degeneration is probably a potent factor. In some instances there is paralysis of respiration long before the heart ceases to beat, but this is not the invariable rule. It is, therefore, obvious that we must look to the pathologist for more reliable data as to the immediate cause of death. In some cases of poisoning by methyl alcohol it has been found that formates appear in the urine as a result of the decomposition of methyl alcohol in the body, and that they are excreted very slowly. Since sodium formate has been found to be eight times more toxic than methyl alcohol, and that formates are slowly eliminated, we have a probable explanation of the prolonged action of a single dose and the fatal action of large doses of wood alcohol.

The treatment should consist in washing out the stomach, if possible, in order to remove any unabsorbed alcohol. Strychnine should be given subcutaneously in order to counteract as far as possible the depressing effect of the alcohol. The surface temperature must be maintained by the use of heaters or hot packs and by rubbing. Cold applications to the head and rectal injections of hot coffee are useful. In the mild cases cathartics and enemata may be given; also potassium

iodide in increasing doses. The latter acts favorably in cases of partial blindness. There is no known antidote for methyl alcohol.

We have pointed out some of the dangers of the use of wood alcohol, and we take this opportunity of encouraging more vigorous action by boards of health in regard to the sale of methyl alcohol and its use in pharmaceutical preparations, whiskey, flavoring extracts, etc., which, on account of this form of adulteration, place the lives of individuals in jeopardy.—*Boston Medical and Surgical Journal*, Dec. 22, 1904.

ETHYL CHLORIDE AS AN ANESTHETIC IN GENERAL PRACTICE.

In the London *Lancet* of December 17, 1904, HILLIARD writes in an interesting manner on this subject. He says that almost any posture is safe, so far as the anesthetic is concerned, but it is to be remembered that small children are best anesthetized in the recumbent position—they are apt to collapse into a heap in the chair if the administration is conducted therein. Also remember that children prefer to sit while being anesthetized—they are less frightened than if laid down; one can always let them sit for the first few breaths, and as soon as the higher consciousness is lost lay them down. Remember, moreover, that the pain of fear is worse than any physical pain, and that the less a patient is, from youth, amenable to reason the more is he susceptible to fear, therefore deal tenderly with the little ones. But if you do put a patient in a chair, place him so that there is no obstruction to respiration and no fear of the respiration being obstructed during the administration; that is, he should be made to sit erect with the head erect on the spine, so that the floor of the mouth is horizontal, for if the head be thrown back, in the favorite position with dentists and barbers, the neck muscles are put on the stretch and the trachea becomes pressed upon in consequence, and there is a risk of the respiration being obstructed. Not only this, but any saliva, blood, or other fluids gravitate backward and are either swallowed or inhaled, in the former case giving rise to subsequent vomiting, and in the latter to laryngeal spasm. If, on the other hand,

the head be tilted forward the chin is apt to press unduly upon the trachea and cause respiratory embarrassment in this way; in either case serious cyanosis, etc., will result, and with the head thrown back "false stertor" is heard early in the anesthesia, before the patient is fully anesthetized, which may lead you to misjudge the depth of anesthesia and stop the administration too soon.

The dose depends upon what operative procedure you wish to do and upon the weight and fitness of your patient. Always dose according to weight—that is, a big, heavy person will require more, other things being equal, than a small, thin one; allow more for alcoholics and smokers and those who are intemperate in anything, and allow less for the anemic or breathless person. A good average dose for an average adult is 5 cubic centimeters; but, of course, the dose will vary with the degree of dilution, and if the face-piece does not fit accurately there will be considerable admixture of air and he may require a further dose, or you may be unable to obtain a satisfactory anesthesia at all. It is better to give a full dose and rapidly induce anesthesia, allowing no admixture of air beyond that which is already in the inhaler, than to economize your drug and make up for smallness of dose by prolonged rebreathing.

The after-effects vary in direct ratio to the amount of rebreathing to and fro allowed; also on the amount of previous preparation and to some extent the dose—after large doses or prolonged administration, during which much rebreathing has been allowed, shock and faintness are likely to be met with. Another important point is the after-treatment; for instance, if a patient be moved too soon he is more likely to suffer from vomiting and headache, but if he be allowed to remain in the recumbent posture for a quarter of an hour or more after the administration he is less likely to have after-effects. The author's average at the hospital among all classes of patients is that about three in twelve have after-effects; many of these, however, come to the hospital soon after a meal and otherwise unprepared. In private practice vomiting is quite uncommon.

Provided that the administration is conducted in the way described—that is to

say, that no outside air is admitted to the inhaler after the air valve has been closed—the following signs are observed: (1) Breathing deepens and becomes more rapid—this alteration in the character of the breathing affords a most valuable guide as to the degree of anesthesia attained, and results not so much from the action of the ethyl chloride *per se* as from the restriction of oxygen, the oxygen originally in the inhaler being soon used up, with consequent stimulation of the respiratory center. (2) A little later one feels by the finger under the patient's chin some vibratory movements of the larynx, and a moment later still these vibrations become more and more audible, until (3) the characteristic laryngeal stertor is observed. At this point the administration should be stopped—*i.e.*, if the stertor be true tracheal stertor and not due to faulty posture causing obstructive or "false" stertor. (4) About the same time that the breathing deepens the patient's color improves and the face becomes suffused, and he looks a healthy, pink color. There is some controversy as to whether the blood-pressure is raised or depressed during the induction of anesthesia. The author holds the middle opinion, *viz.*, that at first, owing to the increased force and frequency of the pulse which is observed in nearly all cases, the pressure tends to rise, but almost at the same time there is some vasomotor paralysis in the cutaneous vessels; these accordingly dilate to a considerable extent, and thus the pressure is equalized, or even tends later in the course of the administration to fall. But this dilatation which causes the suffusion of the face also causes perspiration in many cases, and in others, again, considerable bleeding from the wound, especially after the removal of adenoids and tonsils, particularly if the anesthesia has been pushed and the vasomotor paralysis thus increased. It does not matter much in actual practice whether the pressure rises or falls, for in the event of any accident happening one has no time to waste over examining the pulse. It has been established that ethyl chloride kills, not by paralyzing the heart, but by paralyzing the respiration, the chest becoming fixed in overexpansion; thus, in restoring a patient who has been overdosed, nitrite of amyl, for instance, would be useless. (5) About the same time, or a little later than that

at which the face becomes suffused—usually from forty to fifty seconds—the globes of the eyes become fixed, often after some preliminary nystagmus, and usually in the position of convergent squint downward. (6) A moment or two later the pupils dilate, and if the anesthetic be not now removed (7) the light and the corneal reflexes disappear, the pupils becoming very dilated and fixed. If air be now admitted and the anesthesia be lightened or continued in a lighter stage the pupils again contract, but the author has seen in several cases, even after the corneal reflex has returned, the pupil remain wide and insensitive; this is unaccountable, and cannot be explained any more than why in a few other cases the pupil does not dilate, even although the patient be deeply anesthetized. These irregular cases only again impress upon us the necessity for considering all the points of available evidence before making up our minds as to a patient's condition.

To repeat, although in about 90 per cent of cases the signs of deep anesthesia are stertor, fixity of the globes, and dilated pupils with loss of ocular reflexes, yet these signs must not be taken as invariable, and one must always be on the watch for unusual symptoms. As a rule there is but little salivation during induction, but often one meets with profuse secretion of saliva for no obvious reason—this is a point worth remembering in arranging the patient's position. It is never wise to push the anesthetic in the case of fat subjects; they bear deprivation of oxygen badly and are more likely to suffer from shock; also their respiratory passages are as encroached upon by fat overgrowth on the inside as are the skin and cutaneous tissues, and the air-ways are more likely to become occluded. Never administer ethyl chloride without first placing a wooden dental prop between the teeth—this not only keeps the air-way free, but is also a safeguard in case one may have to insert a Mason's gag to expedite means of resuscitation.

Some anesthetists have stated that ethyl chloride is unsuitable for certain special operations—*e.g.*, for breaking down joints and for setting fractures, etc.—because they say they cannot obtain complete muscular flaccidity; but that probably is merely a question of degree of anesthesia, and if the anesthetic be

administered with a free admixture of air and is pushed to fixity of the globes, dilatation and fixity of the pupils, with loss of corneal reflex and with stertorous breathing, there will be complete muscular flaccidity in the vast majority of cases.

With regard to contraindications, in the following conditions ethyl chloride should not be administered: diseases of the larynx; inflammatory lesions and tumors in, or adjacent to, the respiratory passages; goitre; all conditions giving rise to urgent dyspnea; and in long operations. Time does not permit the author to mention other points—*e.g.*, treatment of dangerous symptoms, etc.; its use with other anesthetics and for long and for special operations, especially tonsils and adenoids, except to remind us that in these last the risk is increased if the coughing reflex be abolished, and that under ethyl chloride this occurs very rapidly.

THE TREATMENT OF ECLAMPSIA.

In the *Montreal Medical Journal* for December, 1904, EVANS asserts that the conservative treatment is directed toward controlling the convulsions and securing the elimination of the toxin, leaving the pregnancy to be dealt with when the os has dilated sufficiently to permit delivery by forceps or version. What might be called the active treatment is first to clear out the uterus as rapidly as possible, and then to endeavor to secure elimination of the toxin.

Believing the convulsions to be due to toxic nerve irritation, resulting in spasm of the vasomotor system, nerve sedatives and vasodilators are administered in order to secure control. The Germans use but few drugs—chiefly morphine and chloroform—while many, as in the Giessen clinic, use no narcotics.

The nerve sedatives employed are chiefly chloral, morphine, and chloroform. Both English-speaking and German physicians employ chloroform to control the actual convulsion, while many limit its use to the time of delivery. It is believed to relieve the venous congestion by lowering arterial tension.

Morphine is usually administered in large doses, $\frac{1}{4}$ to $\frac{1}{2}$ grain. It is believed to inhibit metabolism, thus stopping the formation of toxin, and to overcome the vasomotor spasm, thus favoring urinary

secretion. Veit, who thinks that generally an insufficient amount is used, has given as much as three grains in four hours, but as a rule the maximum dose in twenty-four hours should not exceed two grains. Berkeley, who has canvassed the obstetricians of Great Britain upon the treatment of eclampsia, states that the majority of English physicians employ it. He quotes Löhlein, who has collected 325 cases, with a mortality of 13.3 per cent where this drug was used.

Chloral is employed by a few Germans, but the majority of English physicians have abandoned it. Charpentier recommends its use in large doses, giving as much as half an ounce in twenty-four hours. Many concede that it may be of use in the milder cases, but should not be employed when coma is marked.

The vasodilators employed have been numerous, and not a few physicians pin their faith to various of these as panaceas for eclampsia; but few of them have many friends, and most of them have but a few friends.

Pilocarpine, at one time popular, has been abandoned as uncertain and often dangerous. *Veratrum viride* is employed chiefly in America. It acts by dilating the arteries and depressing the heart. It is said to promote the activity of the skin and to favor diuresis. It is best administered hypodermically, 20 minims of the fluid extract as an initial dose, followed by 10-minim doses at intervals of half an hour, till the pulse is kept below 60. It is a powerful cardiac depressant, and is contraindicated when the pulse is weak and irregular. It is difficult to form an opinion as to the value of this drug, for its friends claim too much for it, and its failure in the hands of men of large experience and of good judgment does not inspire faith. The author's experience is that it has not been any more successful than other drugs of its class, and he has practically abandoned its use.

Helme, of Manchester, in May last suggested the employment of subarachnoid puncture in eclamptic convulsions, believing that the convulsions and stupor are dependent upon increased intracranial pressure. In November, 1903, he successfully treated a severe case by this means. He withdrew a drachm and a half of cerebrospinal fluid by lumbar puncture, and mentions that the fluid

escaped rapidly as if under considerable pressure.

Kröning, of Jena, in the *Centralblatt für Gynäkologie* of October 1, 1904, has a paper on this subject in which he fails to notice Helme's case, seeming to have been independently led to the same conclusion. In view of the marked increase in the blood-pressure of eclamptics he was led to investigate the degree of pressure upon the cerebrospinal fluid in these cases, hoping thus to possibly find some therapeutic results by removing a certain quantity should the intracranial pressure be found to be augmented. He reports three successful cases so treated. The first of these was a severe case and may be referred to in some detail. To the needle used in the lumbar puncture was attached a Quincke's apparatus for estimating the pressure under which the cerebrospinal fluid escaped. The pressure was found to rise between 430 and 540 millimeters, water pressure. On withdrawing 20 cubic centimeters of fluid the patient had a convulsion which raised the intracranial pressure to over 600 millimeters, the capacity of the Quincke apparatus. In all he withdrew 37 cubic centimeters of cerebrospinal fluid, the intracranial pressure then varying between 80 and 120 millimeters. No convulsions occurred after this time. The patient was then delivered by vaginal Cæsarian section. The other cases were identical. He concludes his paper by stating that no conclusions can be drawn from these cases, as in all three other important therapeutic means were employed. But he is certain of two points: that no harmful effects resulted in any of the cases, and that the general satisfactory condition of the patients seven to eight hours afterward could not be wholly ascribed to the withdrawal of the cerebrospinal fluid.

From the results reported it is apparent that further investigation along this line is warranted.

The elimination of the toxin is promoted by means of venesection, purgation, salines, and hot packs and baths.

Venesection is of value in sthenic cases, where cyanosis is a marked symptom. It is also indicated when the right heart is overdilated, and engorgement of the lungs is present. Williams thinks that it should be employed in all cases where the fits continue after delivery of the child. He

withdraws 500 cubic centimeters of blood, and injects the same amount of saline solution.

Many, believing that toxin is generated in the digestive tract, urge purgation. The same method of treatment is urged by others in order to favor the elimination of the toxin from the system in general. The Germans do not pay so much attention to active purgation as do the English and French. Magnesium sulphate is the favorite drug, but croton oil is used by many. The author is strongly in favor of the saline purgation, as he thinks it favors elimination of the toxin.

The Germans generally rely on bowel and stomach washing to clear out the digestive tract. Usually warm saline solution is employed in large quantities, and the treatment is repeated at intervals of four to six hours.

DISEASES OF THE SKIN CONNECTED WITH ERRORS OF METABOLISM.

BULKLEY in the *Medical Record* of November 26, 1904, says that we may sum up our knowledge in regard to diseases of the skin dependent upon errors of metabolism as follows:

1. Metabolism represents the changes occurring in the system, whereby nutritive materials and oxygen are transformed into living tissue, and retransformed into waste products, while during these processes their potential energy is being given off in living force and heat.

2. As healthy cell action and transformation is produced and maintained by perfect metabolism, so when there is perverted metabolism the structures in various parts of the body must suffer, and this we call disease.

3. As every cell in the body constantly takes up and gives off material, so the results of metabolism can be affected by the normal or abnormal action of every living cell in the organism.

4. Metabolism is, however, principally affected by (1) the kind of nutriment taken; (2) the action of the digestive organs and ductless glands; and (3) the action of the nervous system.

5. Certain skin lesions, or eruptions, have been credibly reported as connected or dependent upon the generally recognized metabolic conditions of (1) gout;

- (2) rheumatoid arthritis; (3) diabetes;
- (4) obesity; (5) scrofulosis.

6. As yet no absolute statements can be made as to the necessary connection of the two, for the same eruptions occur in several of the metabolic affections.

7. The idiosyncrasy of the patient, and many causative elements, external or internal, nervous, etc., often determine which form of skin disturbance or alteration shall take place.

8. Errors of diet, disorders of digestion, faulty excretion, and nervous derangement, which have all along been recognized as causative elements in many diseases of the skin, often find their ultimate expression or mode of action through the faulty metabolism induced thereby.

9. Metabolic errors are exhibited in the excreta from the lungs, skin, intestines, and kidneys; and of these, the urine best affords a satisfactory indication, as it represents nearly one-half of the total excreta, and practically all of the nitrogenous and soluble mineral substances, together with about one-half of the water expelled from the system.

10. Complete and minute urinary analysis is a very great aid in discovering metabolic errors, and in establishing proper therapeutic measures for the cure of many diseases of the skin.

INFANTILE DYSENTERY.

KNOX contributes to the *Journal of the American Medical Association* of December 24, 1904, an account of a study of this disease. He believes the key-note in treatment is promptness. If the food can be stopped and the alimentary tract emptied within a few hours after the onset of symptoms, most infections can be aborted.

The results of antidysenteric serum treatment were disappointing. It, too, was apparently helpful in proportion to the shortness of the time which elapsed between the beginning of the illness and the injection of the serum. Its use is perfectly harmless under antiseptic precautions.

The prophylactic injection of the serum into susceptible babies may prove to be an advisable procedure.

The alterations in the body produced by the action of the dysentery bacillus may

be those of an acute toxemia only, or in addition there may be set up more or less destructive lesions of the lower bowel. In this latter process streptococci and other organisms may play a part. The constant change noticed in all cases was the enlargement (serous infiltration) of the mesenteric lymph glands.

FATTY DIET AND ACETONURIA.

It is not infrequently assumed that in a diabetic diet the fats are the one element which do no harm. This view is, but only to a limited extent and with important qualifications, confirmed by Dr. E. P. Joslin, who, in the *Journal of Medical Research* for October, reviews critically former work regarding the influence of various fats on the formation and excretion of acetone, and gives a report of his own experiments, the practical bearing of which on the proper diabetic diet is obvious. Most previous work is invalidated by lack of proper control of the diet, which is usually described merely as strictly albuminous and fatty, or that plus varying amounts of carbohydrates—descriptions which tell nothing, inasmuch as both albumin and carbohydrates diminish acetonuria. To be of value such experiments must take account of the B-oxybutyric and diacetic acids and acetone, all being interrelated bodies to be estimated together; and the pulmonary excretion of acetone must be measured, as much as seven per cent at times escaping in the breath. In general, no demonstration of the amount of absorption of the fats administered has been furnished; and soaps have been used, though the power of alkalis to increase acetonuria is well known; and no account has been taken of the acetone-inhibiting power of the glycerin component of neutral fats.

While numerous observers have shown that the addition of large quantities of fats to a mixed diet results in greatly increased acetonuria, Geelmuyden showed that this was largely conditioned by the simultaneous administration of carbohydrates, an acetonuria of 223 milligrammes artificially produced in a healthy individual by an albumin-fat diet falling to one of 26 milligrammes as soon as 150 grammes of carbohydrates were taken; and Schwarz saw an acetonuria disappear

entirely within seventy-five minutes after the ingestion of 150 grammes of glucose. If with healthy individuals the diet be merely albumin and fat, while matters are simplified, it is, nevertheless, as Geelmuyden has pointed out, important to know just how much of each is given, as the acetonuria rises with a decrease in the albumin, by reason, Geelmuyden believes, of the liberation of considerable amounts of carbohydrate material in the metabolism of the albumin, and to large quantities of albumin sparing the consumption of the body fat. Examined from this point of view, the literature offers few satisfactory observations. Geelmuyden's experiments further show in the plainest manner that butter increases acetonuria; also the great increasing effect of inanition, an acetonuria of over 300 milligrammes increasing when the total calories were reduced from 3000 to 700, though the fat was diminished at the same time from 300 to 30. When more than 100 grammes of fat was given, at least 80 per cent, and usually 90 per cent, was absorbed. Geelmuyden further showed that during phloridzin diabetes in a dog, acetonuria increased under sodium butyrate, but was prevented or lowered by a neutral (beef) fat. But no determination was made of the absorption factor. Schumann-Leclerq and Hagenberg also note the increase of acetone excretion after the use of butter.

The relation between fats and acetone excretion in diabetes is universally acknowledged. Thus Schwarz found this increase under the use of butter during a strictly albuminous regimen; Waldvogel, the same following the administration of oil; while Lepine saw an increase in diacetic acid after the use of cream. Grube found butter to have a marked action in the direction of increase; a moderate increase occurred with cream, but none with hog fat. Schwarz's cases were the most thoroughly studied. He concluded that not only butter with its volatile fatty acids, but also other kinds of fat poor in those acids, increase the acetonuria. Butter, he believed, increases it more than fats composed of the higher fatty acids, and oil he thinks acts chiefly by its content of volatile fatty acids. On this Joslin remarks that the first conclusion is amply warranted by the facts, but that the others

have to be qualified by the lack of proof as to extent of absorption. Schwarz also studied in diabetics the effects of palmitic and oleic acids, and of sodium stearate, valerianate, caproate, butyrate, propionate, and bicarbonate; but these experiments again are inadmissible as not taking account of all the factors.

To eliminate the foregoing sources of error, Joslin carried out twelve experiments on men, each experiment lasting four days, on the second and third of which nothing was taken but a liter of water. In most cases the stools were examined for fat; in all the acetone was estimated in the breath as well as in the urine. During the starvation days tests were made with oleic, stearic, palmitic, and butyric acids, sodium palmitate and bicarbonate, tristearin, triolein, and glycerin. Joslin considers that his experiments show that conclusions as to the action of various fats (whether neutral fats, fatty acids, or soaps) upon the elimination of acetone are of little value without proof of their absorption. Neutral fats, whether of the lower or higher fatty acids, do not increase acetonuria, their glycerin component sufficing to prevent it. Oleic acid produces marked acetonuria; butyric does not produce such result. The poor absorption of palmitic and stearic acids suffices to explain the negative result obtained in this and other experiments. Sodium palmitate produces a marked acetonuria not explicable merely by the presence of the alkali.—*Medical Record*, Nov. 26, 1904.

THE "YOLK CURE" IN THE TREATMENT OF THE UNDERFED.

To the *Medical Record* of December 1, 1904, STEIN contributes a paper in which he speaks in words of praise of this plan. He believes there is one fact we may be assured of, namely, that the yolks of eggs are well tolerated by almost every underfed individual. Yolks are therefore to be the basis of the nourishment of the underfed. It is for the clinician to determine in what kind and in how much of a menstruum the yolks are to be ingested. Here is where the difficulty arises. In some cases it will be found the yolks are best administered in milk, coffee, or tea; in others in the form of a modified egg-nog.

Their beneficial effect in many instances is only noticeable when they are taken together with certain carbohydrates in suitable amounts. Taken in soup or broth, together with beef, lamb, or chicken, they often give rise to bodily improvement, which does not ensue in the same degree when other types of ingesta serve as vehicles. Again, in other cases, especially in those of phthisis pulmonum, an ordinary mixed diet in which the fat substances are merely replaced by the yolks is frequently all that is necessary to stimulate the assimilative properties and to cause increase of weight, vigor, and resistance.

If the patient who is not in the last stages of a consumptive affection does not gain in body weight while he is under the "yolk cure," the latter as a rule is not properly executed—that is, the food which is partaken of together with the yolks is either not the right kind or is ingested in amounts not suited to the alimentary condition. While the proper kind of nutriment favors the specific yolk action, food wrong in character or amount, or in both, retards or suppresses the absorption of the yolk constituents.

On the other hand, the yolks facilitate the digestion of certain amounts of carbohydrates (diastasic ferment) and that of comparatively large quantities of proteids (stimulation of gastric secretion). They do not seem to possess properties which render other fats added to the food easy of absorption. Again, impaired fat absorption appears to be directly responsible for the underfed state in a rather large percentage of cases. As experience (fecal examinations) has shown that yolks are almost as completely absorbed in most instances of disease followed by loss of body weight (in not too-far advanced stages) as they are in the normal individual, all fatty substances in the food should be replaced as completely as possible by yolks. When improvement has ensued, it might not be necessary to insist upon yolks as the sole fatty nutrient in all instances; some other fats, in limited amounts, may be added to the diet, or what seems more rational, one or more days on which the yolks do not form an important part in the diet, but on which the common fat substances are ingested in limited amounts, may be intercalated

every week. On the other days, however, the yolks should continue to furnish the bulk of the heat units, or at least they should form the sole fatty matter entering the organism with the diet.

A sample of a yolk menu destined for a consumptive weighing 110 pounds (950 kilogrammes) whose normal weight ought to be 140 pounds (63.63 kilogrammes), but whose alimentary system admits the ingestion of some carbohydrates and of almost normal amounts of proteids, is given in the following. This patient should obtain food to the value of 35 calories per day per kilogramme of body weight—that is, 1750 calories in the twenty-four hours.

	No. of yolks.	Calories yielded by yolks, approximately.	Total calories, approximately.
Breakfast:			
250 Cc. skim milk, with 4 yolks.....	4	200	290
30 grammes wheaten toast.....	...	...	75
Early lunch:			
Cup of coffee, 2 yolks	2	100	100
Dinner:			
One plate of soup, 4 yolks	4	200	225
Beef, very lean, 150 grammes.....	...	...	125
30 grammes wheaten toast.....	...	...	75
4 o'clock:			
250 Cc. skim milk, 30 Cc. whiskey, 3 yolks.....	3	150	370
Supper:			
Porridge of farina, or rice, 100 grammes, 1 yolk, skim milk.....	1	50	350
Apple sauce, 75 grammes .....	...	...	30
At bedtime:			
Nightcap (90 Cc. hot water, 10 Cc. whiskey, 1 yolk, teaspoonful granulated sugar).....	1	50	110
Total	15	750	1750

In a prolonged yolk diet, the proportion of the various types of nutritives may, and must, be altered according to the prevailing alimentary circumstances; a dietary as outlined in the foregoing, however, may be looked upon as a standard in the suitable cases. The whole egg may be well tolerated in certain cases; when whole eggs are employed extra yolks may be added to them. In order to avoid monotony and aversion, the latter being invariably the consequence of the long-continued use of the same kind of meat or of the same kind of farinaceous material, a variety of dishes in which yolks may be incorporated should be devised.

All yolk dishes must contain salt in sufficient amounts. Flavoring and seasoning substances may be added to the various articles of food as long as there is no contraindication to their employment; it should always be borne in mind that spices are not inert substances, and that their use may as well retard as increase digestive activity, as the case may be. As a general rule, patients under the "yolk cure" are not subject to obstipation. Mild laxatives may be employed in cases tending to this condition.

The "yolk cure" in its various modifications has nothing in common with the legion of unnatural and irrational feeding systems extolled here, there, and everywhere. It is not a fad with the author, and he hopes it will not become one with others. It has its limitations to be sure, but if conscientiously employed in certain forms of malnutrition, it will increase the body weight and restore bodily resistance when other dietary regimens have proved decided failures.

X-RAY THERAPEUTICS.

EWART writes of this plan of treatment in the *Edinburgh Medical Journal* for November, 1904. He thinks that there can be no doubt that malignant growths can be influenced by the x-ray, but whether this method of treatment is advisable is quite another matter. Bearing in mind the superficial nature of the influence of this agent, and further, the diffuse and uncertain nature of secondary deposits, one cannot conceive how anything of a beneficial nature can be expected from this method of treatment. Rodent ulcer, though undoubtedly a malignant growth, on account of its superficial character and absence of secondary deposit, naturally falls within its sphere of influence. Sarcomata should not, on account of their vascularity, be in any way affected. If the growth is more chronic and less vascular, as in the spindle-celled variety, some influence might be expected. Actual clinical experience seems to bear out the above supposition, though the extent of such benefit is scarcely sufficient to justify treatment on these lines. The use of the rays in hopeless cases does certainly seem to relieve pain, though for expediency and efficiency it cannot be com-

pared to a hypodermic injection of morphine. In rodent ulcer, therefore, it has its greatest sphere of usefulness, and certainly produces a very soft and almost invisible scar. Recurrences unfortunately occur in nearly 50 per cent of the cases supposed to be cured by this means, a percentage which is greater than in those treated by the knife. Further, operation is quick and in the end less expensive; so that, taken altogether, even in this form of malignant growth, whose characters are exactly suited to the sphere of influence of the rays, they have a very restricted value.

Perhaps, where the patient is too feeble, or the growth too extensive for removal, or has recurred repeatedly after removal, the rays find their true use.

In other conditions of the skin, such as eczema and tinea sycosis, we have most remarkable and rapid results; in the former, however, relapse is almost inevitable, while in the latter the result appears to be permanent. It is possible that a chronic eczema, treated by those means and associated with local applications and constitutional means, may, in selected cases, give good results. Lately, in leucocythemia, marked benefit has been achieved by gentle x-ray treatment; and, according to reported cases, the spleen has diminished in size to a remarkable degree, the constitutional condition of the patient becoming much improved.

THE TREATMENT OF THE MUSCULAR, HEMIC, AND MECHANICAL FACTORS IN HEART DISEASE.

In the *Edinburgh Medical Journal* for November, 1904, MORISON writes as follows:

The indications for the treatment of the hemic factor in heart disease concern its quality, its quantity, and its distribution. The quality of the blood may be defective in its elaboration and its oxygenation, or contaminated by infective agents and processes. We are constantly reminded of the importance of a normal elaboration of the blood by witnessing the effect upon the heart, whether organically diseased or no, of various forms and stages of anemia. Although it has not yet been demonstrated, it is possible that some graver forms of anemia are depend-

ent upon infective contamination, but the constantly observed anemia of more or less overworked or improperly fed adolescents and young children points to defective elaboration as the secret of the majority of the anemic states with which we have to deal. Sufficient rest, simple but sufficient fare, and the well-known hematinics serve to remove the cardiac weakness due to such anemic states. It is their resistance to these measures, their ingravescent deterioration, with distortion of the blood elements, and frequent termination in death, which serve to indicate the symptomatically termed pernicious anemias. The essential cause of these is so imperfectly known at present that we cannot speak very rationally of their treatment. It is interesting, however, that arsenic, which has at times proved of value in such cases, is also frequently needed as a stimulant hematinic in simpler anemic states, before the latter will respond to treatment. Unlike simple anemia, which so frequently affects the young, and is an imperfect development of blood, many of the pernicious anemias occur in late middle life, and appear to be in some measure a senile degradation of blood.

During a recent debate on the treatment of cardiac failures at the Medical Society of London, Sir Douglas Powell dwelt upon the importance of a due oxygenation of the coronary circulation, and thus chiefly justified the use of oxygen gas as a therapeutic agent. He pointed out how the cardiac muscle was the first to receive the freshly oxygenated blood from the lungs, to which fact it no doubt owed much of its perpetual vigor. The point is not unimportant, and was discussed by the author at some length in articles on the neuromuscular and hemic factors in the circulation, which were published in the *Practitioner* some years ago, and he again referred to the point in 1897.

In connection with pneumonic states, in which a considerable portion of lung is involved, and the function of the organ thus abrogated to that extent, the author agrees with Sir Douglas Powell, that a moderate supplementation of the oxygen by the gas-cylinder is useful and beneficial to the heart's action, and indicated chiefly for the reasons stated. But we

know that the blood can only hold a certain amount of oxygen, and that it does not exhaust the supply provided by the air we breathe. It is fortunate, therefore, that the poor who cannot afford the luxury of cylinder-gas are, in such straits, not much worse off than the rich who can, so long as the nurse can see the sky through the chimney, and knows how to open a window without freezing the patient.

TRACHOMA.

In the course of an article on this subject in the *Medical Record* of December 31, 1904, BARDES tells us that the only satisfactory way to treat trachoma is by surgical procedure. The operation most in vogue is that of expression, which is accomplished with Knapp's roller forceps or with Noyes's angular forceps. If the conjunctiva is dense and firm, it is necessary to scarify it before the granules can be readily expressed. The operation of expression is extremely painful and is usually done under ether, a procedure to which many parents object. For this reason many prefer to have their children treated with the tedious and uncertain astringents. It was to overcome this popular prejudice against operating that the author substituted cocaine anesthesia for general narcosis. The treatment of more than a hundred cases by this method justifies his belief in its efficacy. Cocaine expressions are attended with no pain, and but few sittings are required in order to effect a cure.

Complete local anesthesia is obtained by rubbing into the conjunctiva a 20-per-cent solution of cocaine and applying to the lacrimal opening some vaselin to prevent the escape of the cocaine into the nose. As soon as the lid is insensible to pain it is grasped with an expressing forceps, and with a stripping motion, repeatedly executed, the granules are crushed. The operation should be sufficiently energetic to obliterate the granules, without causing an undue reaction, otherwise adhesive bands may unite various parts of the bruised conjunctiva, and the contraction of the lids that follows acts precisely like the shortening produced in the cicatricial stage of trachoma. This is one of the things to be prepared for, when removing all the granules at one sit-

ting. It is preferable not to attempt too much at one time.

After the squeezing a one-per-cent solution of silver nitrate or a solution of an organic salt of silver can be rubbed into the conjunctiva, and the patient instructed to call again as soon as the soreness has left the lids.

Inasmuch as trachoma is usually found in children in poor health, it behooves us not only to apply local treatment, but to attend to the general health as well. Plenty of outdoor exercise is necessary, together with a liberal supply of milk and eggs and other wholesome food, and possibly cod-liver oil or syrup of the iodide of iron internally.

The personal hygiene of the sufferer should be improved wherever feasible, and the syrup of the iodide of iron given internally.

THE TREATMENT OF PARENCHYMA-TOUS NEPHRITIS.

Sir DYCE DUCKWORTH in the *Clinical Journal* of November 23, 1904, in lecturing on this subject says of the treatment of acute nephritis that a warm bed, bread and milk diet, or milk and barley water, are most useful. Whey is of special value in acute nephritis; there is no better drink. The patient may take two or three pints of whey in a day. He may also have arrowroot, bread and butter, biscuits, and if he is a very hungry individual he may have a little mashed potato. Do not give these patients meat or strong foods. See that the nursing is properly done and that your orders are carried out, and then you will find the smoky urine clearing day by day, the albumin diminishing, and the skin beginning to act, especially if you employ appropriate remedies. The remedies are very simple. If there is much blood in the urine you may dry cup the patient. If he is strong, you may employ wet cupping, taking 12 to 15 ounces of blood from the loins. This is specially effectual, because there is a direct vascular connection between the skin of the loin and the interior of the kidney. Warm poultices on the loins are also of great use. Antimony in the form of antimonial wine is very good in half-drachm doses, combined with nitrous ether and solution of acetate of ammonia. That is all that is wanted, with the exception, perhaps,

that at the outset you should give a calomel purge, two grains of calomel and half a drachm of compound jalap powder, and afterward be content with giving every other morning two teaspoonfuls of the confection of jalap. This clears the renal tubes and diminishes the dropsy in the limbs and face. If the urine does not clear up in a few weeks time on this treatment, you may review the state of the patient's constitution, and see if there is any special cause for the failure of these measures. Ascertain if there is any family delicacy which will explain the rebelliousness to treatment. Cases may go on in spite of treatment and drift into the chronic form, and that, according to the patient's constitution, is more or less grave. We see many of these, but these patients cannot be kept long enough in hospital to get soundly well, and that is one of the limitations of hospital practice. In St. Bartholomew's Hospital they are kept longer than in any other hospital in London, thanks to the generosity and goodness of the governors. Get your patients soundly well, especially of their albuminuria. But in spite of the advantages at this hospital, many of these patients go out with a little albumin in their urine, and they go back to work again, and to their drink again, and expose themselves to one bad influence and another, and probably they will have another acute attack.

The next medicine is iron, which is of the greatest use, generally given as ammonio-chloride of iron in the form of Basham's mixture, sometimes combined with digitalis. Nearly all of these patients become anemic. The amount of albumin lost is very little; a single egg taken each day would more than supply the loss of albumin in the urine. But this constant drain appears to have some power of impoverishing the system. The question has been raised whether there is an internal secretion of the kidney, apart from the functions of the tubular system, which has to do with the general nutrition of the body; but this is an abstruse matter which does not concern us at present. We do not know of the existence of any internal secretion, but patients become cachectic and anemic apparently quite beyond the degree which would be accounted for by the mere loss

of albumin in the urine. But iron seems to be of great help in restoring the blood to its proper state and diminishing the quantity of albumin passed. Another medicine is fuchsin or rose-aniline, in doses of from one to ten grains a day. It sometimes diminishes the flow of albumin, and has the merit of doing no harm even if it does no good. Two of the cases which the author reports are getting on well, and probably will recover.

There are many surprises in store for us in the course of nephritis, for such patients will often live beyond the period which we should apportion for them, but much depends on their environment, and the way in which they live and protect themselves.

THE TREATMENT OF ENTERIC FEVER.

In delivering the Bradshaw Lecture of 1904 at the Royal College of Physicians of London, Dr. F. Foord Caiger chose a subject which will prove of interest to all practitioners of medicine. The case mortality of enteric fever in England is still as high as 15 per cent, and in each year between 5000 and 6000 persons die from the disease. A résumé of the treatment of so prevalent a malady by a physician who has had such a large experience as Dr. Caiger, combined with his own personal impressions, cannot fail to be of considerable practical value. We only intend to draw attention to some of the more prominent points in Dr. Caiger's admirable lecture, but would recommend to our readers a careful perusal of the full text, which is published in the *Lancet* of November 26, 1904. The remarks on the "specific treatment" of enteric fever will naturally be read with interest. The remarkable success which has attended the treatment of diphtheria by the injection of antitoxic serum and the artificial immunity against smallpox conferred by vaccination have not unnaturally encouraged the hope that similar results might be attained in the case of enteric fever. Unfortunately, such favorable anticipations have not yet been realized. Professor Chantemesse has produced a serum with which a remarkable success in the treatment of the disease is said to have been achieved. As to the nature of this serum there is at present some uncertainty, and Dr. Caiger re-

marks that any inference as to the efficacy of the serum is unfortunately weakened by the fact that various other remedies, such as baths, packs, and cold effusions, were used in addition to serum therapy whenever their employment appeared to be indicated. Dr. A. E. Wright's method of antityphoid inoculation is also carefully criticized. The success attendant on this process has been a source of considerable difference of opinion amongst those who have had practical experience of its use. Dr. Caiger refers to the inquiry undertaken by the Royal College of Physicians of London. He expresses the opinion that the further investigations now being made with the object of effecting an improvement in the vaccine and of extending the knowledge already accumulated as to the best and most appropriate dosage will be productive of better issues than have hitherto been reached. We also believe that the results obtained during the South African war and in various parts of the Indian empire warrant a further trial of the vaccine, and that Dr. Caiger's hopes will be fully realized.

Turning to the treatment of typhoid fever as commented on in this lecture we find many interesting and instructive remarks. Dr. Caiger is a firm believer in the cold-bath treatment when properly carried out, and adduces a large amount of evidence, in addition to his own experience, in support of this therapeutic measure. He expresses himself in no doubtful terms on this point, and the large majority of physicians who have had charge of hospital wards will, we think, agree with him. He maintains that in view of the remarkable success which has been achieved abroad with this form of treatment those in charge of hospital patients suffering from typhoid fever incur some responsibility in withholding its use. The method is unfortunately attended with certain difficulties, which occur more particularly in private houses. If, however, the extreme desirability of entering upon this line of treatment be explained to the patient and his relatives, we believe that the baths will meet with more favor than Dr. Caiger anticipates.

The observations on the various drugs which are employed in the treatment of this disease are also of considerable value. Numerous remedies of the

antiseptic class have been advocated, and the lecturer observes that during the last fifteen years he has tried most of these remedies, but in the majority of instances he has been disappointed with their action. He refers with some confidence, however, to a few drugs, notably the essential oil of cinnamon. The favorable effects attending its administration are: (1) The temperature in the majority of cases ran at a lower level than is customary in enteric fever, especially in cases brought under treatment in a comparatively early stage; (2) the patients remained for the most part drowsy throughout their illness, and as a result mental rest was secured and delirium was less frequent; and (3) intrainstestinal decomposition was controlled to an extent which was very striking. The symptomatic treatment of typhoid fever also receives due attention. The management of hyperpyrexia, sleeplessness, delirium, diarrhea (or the converse, constipation), abdominal pain, and cardiac collapse frequently presents great difficulties, and any one of these may add considerably to the difficulties and danger of the case. Great stress is laid on the importance of securing mental rest for the victim of enteric fever, and we agree with Dr. Caiger that in some cases it is no exaggeration to say that treatment of the mind is the most cogent indication throughout. The administration of opium is often of great value when mental symptoms are prominent; the drug is best given in the form of the tincture, five or six minims being taken every four hours.

Finally, Dr. Caiger considers the occurrence of hemorrhage and perforation of the intestine. With regard to the latter complication he declares himself strongly in favor of operation, and is in complete agreement with those who hold that a moribund condition of the patient should be the only contraindication. He further urges that the operation should be performed as soon as possible after the perforation has occurred. The accumulated experience of the last few years has clearly shown that if surgical treatment be postponed until reaction has set in, not only may the chance of a favorable issue be allowed to slip, but the opportunity for operation also.

Dr. Caiger is to be congratulated on having delivered a lecture full of valuable

information. He deals with the treatment of a disease which is rarely absent from the medical wards of the hospitals in large towns, and which occasionally spreads disaster in the form of extensive epidemics. Prophylactic measures are, of course, to be carried out as thoroughly as possible, but curative treatment also is at present indispensable, and the Bradshaw lecture of this year will for a long time stand out as one of the best dissertations on the treatment of typhoid fever which medical literature possesses.—*Lancet*, Nov. 26, 1904.

CLINICAL OBSERVATIONS ON THE ANESTHETIC EFFECTS OF METHYL OXIDE, ETHYL CHLORIDE, AND THE SO-CALLED "SOMNOFORM."

In concluding a valuable paper on these anesthetics in the *Lancet* of November 26, 1904, HEWITT speaks first of *methyl oxide*. When methyl oxide is largely diluted with air the mixture, which is not unpleasant to inhale, does not produce a very satisfactory form of anesthesia. Mixtures sufficiently concentrated to produce satisfactory anesthesia are too pungent to be pleasant. As compared to the anesthesia obtainable by customary means, that produced by methyl oxide is of a light type and is not uncommonly followed by nausea and distress. Although a long administration may lead to a long available anesthesia, unpleasant after-effects are liable to result. As with other anesthetics it is difficult to produce a satisfactory analgesia. In the few cases in which methyl oxide was used there were no indications whatever of danger.

Ethyl Chloride.—This is a useful anesthetic for certain cases. It is a fairly good substitute for nitrous oxide when this gas cannot be obtained. It is, however, somewhat uncertain in its action, sometimes answering every possible requirement, and fully satisfying the patient and his medical attendants; at other times almost failing to produce anesthesia. Its chief drawback lies in the frequency with which it produces unpleasant after-effects—headache, nausea, vomiting, and an indescribable feeling of depression. There is something almost characteristic in the distress which is liable to follow a full dose of ethyl chloride. There is less pho-

nation under ethyl chloride than under pure nitrous oxide. Micturition seems a trifle more common under ethyl chloride. In addition to the after-effects mentioned a feeling of heat is not uncommon. As a routine anesthetic for short dental operations ethyl chloride is distinctly inferior to nitrous oxide and oxygen, although it produces a longer anesthesia. At the same time its portability and simplicity of administration constitute important advantages, especially in crowded outpatient departments and in country practice. In small children who are about to undergo some brief dental or throat operation, and in those adults who are bad subjects for nitrous oxide and oxygen, ethyl chloride will generally answer well. The continuous administration, without rebreathing, of percentage mixtures of ethyl chloride and air does not produce the best type of anesthesia. The best results are obtainable by means of the apparatus in use by the author, which allows of a gradual addition of ethyl chloride vapor to a known volume of air breathed backward and forward.

Mixtures of Nitrous Oxide and Ethyl Chloride.—By adding ethyl chloride to nitrous oxide a very deep form of anesthesia is induced with extraordinary rapidity, the method having the advantage of destroying consciousness more pleasantly than with ethyl chloride alone.

The so-called somnoform does not produce such good results as pure ethyl chloride, and is distinctly more dangerous. The effects produced by the two agents are, however, very similar.

FOREIGN BODIES IN THE EYES OF CHILDREN.

In the *British Journal of Diseases of Children* for November, 1904, STEPHENSON gives the following advice on this subject. He says that nine times out of ten the foreign body lodges on the inner surface of the upper lid, in a small groove (the subtarsal sinus) which runs parallel with the free border of the eyelid. Pain and discomfort are then considerable, owing to the cornea being continually fretted by the movements of the upper eyelid. Removal is quite a simple affair. It is merely necessary to evert the eyelid, and to lift off the substance with the

point of the small instrument sold for the purpose, and known as the "corneal spud." A piece of damp cotton-wool, twisted to a point, may also be employed for the purpose, in the absence of a more formal instrument. A very remarkable case was reported by William Mackenzie in his "Practical Treatise on the Diseases of the Eye" (fourth edition, 1854, p. 231). A child was brought suffering from severe inflammation of one eye, accompanied by a purulent secretion. From under the edge of the upper lid there projected a black, roundish body, which at first view even so acute an observer as Mackenzie thought might be a protrusion of the part of the iris through an ulcer of the cornea. His surprise was great when, on cautiously raising the upper eyelid, he found this was a case not of figurative but of real myocephalon. A common house-fly had been firmly lodged for eight days between the eyeball and the upper eyelids, its head projecting in such a way as to produce the appearance described.

Foreign bodies, as already said, may lodge in the sulcus that lies above the upper eyelid, the superior cul-de-sac, and in that position they give rise to little discomfort and may readily be overlooked. In the latter event the most anomalous appearance may be met with, particularly when the substance has been present for several weeks or months. A child, aged five years, presented a red and fleshy mass, as big as a peanut, growing out of the eye, and springing from the outer end of the upper conjunctival sac. Under an anesthetic the author snipped away the growth, and found at its point of origin from the conjunctiva a bit of straw nearly half an inch in length. He has met with several similar cases, without exception in young children. Dr. Deschamps, of Grenoble, has recently pointed out that in practically every case of so-called polypus of the conjunctiva that has fallen under his notice a small embedded foreign body has been the cause of the mischief. While it is true that in most cases these polypi originate from the superior cul-de-sac, yet he recently met a case where such a growth was situated in the ocular conjunctiva, 6 millimeters or so from the edge of the cornea. The appearance presented was that of a fleshy mass, the diameter of which measured 4 milli-

eters. It was removed, and a little piece of bristle from a bass broom found to lie at its root.

A foreign body, usually an eyelash, may lodge in the upper or lower punctum lacrymale, a position where it may lead to considerable irritation of the eye. The author has twice removed cilia from the lower punctum. At the Ophthalmic School it was not an uncommon event to remove short hairs from the puncta of boys a day or two after the barber had visited the institution. Certainly, in the author's experience, foreign bodies in the puncta are not so rare as current statements might lead one to think.

A slight injury of the cornea, such as is inflicted by a foreign body, is in elderly persons with unsound tear-passages the common cause of one of the most destructive forms of corneal ulceration, the so-called *ulcus serpens* or *hypopyon-kera-titis*. We distinguish between foreign substances embedded superficially and deeply in the cornea. The former, much the more common, should be removed as soon as they are found, the eye having first been rendered insensitive by a few drops of cocaine, 2 per cent, and adrenalin hydrochloride 1:1000. In very young children a general anesthetic, however, will almost certainly be required. The substance is taken away with the corneal spud or by means of the twisted wool mentioned before.

It is with deeply embedded bodies, however, that mistakes in diagnosis and treatment are likely to arise in children. A rule might be formulated, namely, that whenever you come across in a child a lesion of the cornea that does not resemble any ordinary speck, infiltration, or ulcer, suspect the existence of a foreign body, and do not allow the patient to leave without satisfying yourself as to the truth or falsity of that view. A few weeks ago a child of two and three-quarters years was brought to the author with the statement that a speck had been noticed on one eye for several days. Upon examination he found a grayish, semi-lunar figure at the center of the cornea. It resembled no lesion that he was familiar with. Under ethyl chloride he removed a paring from a child's nail, which was rather deeply embedded in the substance of the cornea. On the 18th of February

last a small boy, aged four years, was brought to him at the Northeastern Hospital for Children on account of a speck, which had been noticed for about a week, on the right eye. The eye was red, and showed a degree of photophobia. In the lower inner segment of the cornea lay a yellowish humped mass, presenting a curiously dry appearance. It was surrounded by a distinct groove in the tissue of the cornea. The mass extended from the limbus 4 millimeters into the tissue of the cornea. Under ethyl chloride it was readily detached with the aid of a cataract needle, when it proved to be a seed-husk. The writer has had somewhat similar experiences with the operculum of the periwinkle, elytra of certain insects, and other singular foreign bodies.

CONCERNING ACETANILID.

On this practical clinical subject CLARK writes an article in the *Boston Medical and Surgical Journal* of November 17, 1904. He says that as an internal remedy acetanilid is fourfold in its action, viz.: anodyne, antipyretic, sudorific, and perhaps slightly soporific.

Though acetanilid is capable of assuaging pain, it will not remove all pain—that is, every kind of pain—no matter what the cause; it will never take the place of the other well-established anodynes. Nor will it cure every sort of headache, notwithstanding the fact of its being the active ingredient of the much-vaunted “headache powders.” For headaches of the persistent type, under the name of sick, nervous, “bilious,” periodic, or megrim, acetanilid, when combined with soda bicarbonate and caffeine (acetanilid 3 to 5 grains, citrated caffeine 1 grain, soda bicarbonate 5 to 10 grains) secures many excellent results. But it must be remembered that caffeine will oftentimes accomplish the same results when given alone; so does guarana (the old *Paullinia sorbilis*), with which under the latter name the author has succeeded in removing wretched headache for a period of thirty or forty years. This was at the time when paullinia was first imported into this country, under that appellation, from France, and in the form of powders, of 12½ grains each, and twelve powders in a box. Two or three powders given at intervals of half an hour would generally

relieve the pain. Bromide of potassium or bromide of sodium has accomplished like benefit; so too much credit ought not to be given to acetanilid for cures equally attainable by other remedies. What will answer well in one case may not in another; even a change of diet may secure the end desired.

In spasm of the stomach, known as gastralgia, and in acute attacks of indigestion, a combination of 3 grains of acetanilid and 5 grains of bicarbonate of soda has both succeeded and also failed.

Acetanilid also reduces the temperature, and it excites the perspiration. As these two effects of this medicament are concomitant, they will be discussed together. Except, in a few instances, in its latter capacity it is the equal here of the time-honored “Dover’s powder,” once regarded as the sheet-anchor of the Pharmacopœia. In incipient coryzas, and in certain bronchial affections and in pharyngitis (all labeled “colds” by the laity), the effects of acetanilid are sometimes wonderful. In the hot stage, attended by a difficulty of breathing through the nose or by a feeling of tightness in the chest, by shivering, soreness of the flesh, and by a general malaise (all of which symptoms may be the precursors of some serious affection or merely of a simple cold in the head), acetanilid, given in small and repeated doses, relieves always and may ward off the threatened attack. The dose in this case should be from 3 to 5 grains, repeated every two or three hours. The moment perspiration is established the danger line is passed.

Another method of “breaking up a cold,” as it is termed, is to administer from 5 to 6 grains of acetanilid at bedtime, followed by a hot foot-bath and a draught of hot lemonade or of hot whiskey and water and the like. In this respect this remedy is superior to the much-lauded quinine, and many times as beneficial as Dover’s powder, without its disagreeable taste and after-effects. As a reactionary agent acetanilid possesses great powers, providing its depressing tendencies are counteracted.

In influenza its value is considerable in establishing a reaction through its sudorific powers. For this purpose it may be administered in doses of from 5 to 10 grains, according to age and other considerations, every two or three hours,

until full perspiration is established. This dosage should not be carried, however, beyond the fourth time. There is usually obtained a profuse perspiration after the third or fourth dose. Should no perspiration occur after the fourth dose, it is a safer practice to discontinue the remedy for a while, and when resumed, to be repeated at longer intervals. But great care should be exercised, and it should not be persisted in for too long a time in large doses. Sometimes it fails, and some other medicinal agent has to be employed.

As to its soothing or soporific properties, acetanilid is of some service. In the first stage of a "cold" its employment produces a well-pronounced quietness; a feeling of ease and comfort at once supervenes; a reaction soon sets in; and many of the bad symptoms lessen or totally disappear. Some of these beneficial effects may be due, however, to its other virtues. Of these effects the author speaks from actual experience, though in a far less marked degree than what are obtained from either opium or its alkaloid, morphine. Perhaps this is one of the effects of the remedy which makes it so great a favorite among persons who are troubled with "bad nerves." But physicians are not always responsible for the abuse of a drug. Acetanilid has not been misused more than many other medicaments. Unfortunate results will follow the administration of a remedy, even on the exercise of a due amount of skill. The author has employed it in a great number of cases, both internally and externally, and thus far without any unfavorable result. Of course, the necessary precautions have always been taken. The employment of acetanilid as an internal remedy will, in the course of time, find its limitations.

As an outward application acetanilid acts both aseptically and antiseptically. It may also subserve the purpose of an anodyne, but it does not possess that property to the degree of resorcin. In these instances it is clearly employed as a dry dressing. It is indicated in all discharging surfaces, open wounds, ulcers, granulations, and especially in operations in minor surgery, and may be advantageously used in every case requiring a dry dressing.

Suppurating and ulcerative surfaces are first washed with peroxide of hydrogen, then the part is sprinkled with ace-

tanilid (pulverized) and covered with a strip of absorbent cotton or of ordinary lint that has been previously smeared with vaselin, then the whole bandaged if necessary. If the surface which is to be treated is large, precaution must be taken not to make a too lavish use of the acetanilid. It may be said here that it is the equal of iodoform as an antiseptic, without having its disagreeable qualities. Sometimes it has been advisable to give the outside of the lint or absorbent cotton a thin dusting of powdered acetanilid in addition to the former application.

In the treatment of open wounds and of the minor operations, the procedure is somewhat as follows: The injured part is first cleansed and carbolyzed, the loose ends adjusted, sutured or strapped, or both, then carbolyzed, and acetanilid dusted over the whole. A bandage may be now loosely applied. After removing whatever sutures there may be, the wound is to be treated as before. After the second dressing little or no subsequent treatment is usually necessary, unless for the readjustment of parts where the tissues have been much torn. Extensive lacerations by machinery of thumbs and fingers, even when the bones are split and necessarily require whole or partial removal, under this method have admirably healed, and with hardly an exception without the formation of any pus.

In the treatment of ulcers of the leg, generally of the varicose variety, the use of acetanilid has, in the hands of the author, surpassed every other application adopted in his former hospital practice. At that time the common procedure consisted in poultices, cauterizing, the application of the perfunctory iodoform, ointments of various kinds, astringent washes, and mainly strapping. The method was long and tedious and somewhat expensive in private practice.

SHOULD PULMONARY TUBERCULOSIS BE TREATED AT HOME?

This question is answered by CRAIG in the *New York Medical Journal* of December 3, 1904. He first asserts that outdoor life is not all-sufficient in the treatment of these cases, as demonstrated by late statistics, which show that thirty per cent of the adult population of the Philippines, where outdoor life is the common

mode of existence, die of some form of tuberculosis.

The four factors which most directly contribute to favorable climatic conditions are sunshine, relative humidity, temperature, and altitude.

The value of a maximum amount of sunshine cannot be overestimated, as the humidity and temperature depend upon it in a large measure. Its influence upon the mental condition of the average patient is very pronounced. When the day is cloudy and the humidity great, he is depressed and can hardly be induced to get out of the house. When the sun is shining brightly his melancholia disappears, and he wishes to put in as much time as possible out-of-doors. The entire area comprised of Arizona, New Mexico, western Texas, Southern California, and Nevada has an unusual amount of sunshine as compared with eastern States.

As an illustration in point, the average daily sunshine for the month of February in Phoenix, El Paso, and Redlands is over eight hours. Numerous points of observation in Arizona are reported by the United States Weather Bureau as having less than fifteen entirely cloudy days during the year 1903.

Humidity.—A low relative humidity, which depends to such a great extent upon the sunshine, is probably the most important of all climatic conditions in its relation to the cure of pulmonary tuberculosis. In northern Asia, the Rocky Mountains, and the great plateaus of Central Africa, where there is a minimum amount of moisture in the atmosphere, the disease is comparatively rare, and clinical evidence has taught us that tuberculous cases improve much more rapidly and that the percentage of recoveries is much greater where the air is dry.

Temperature.—Temperature in itself is not so important, except as to its influence upon the total amount of sunshine and the relative humidity. Its greatest influence is perhaps in the amount of time a patient is allowed to spend out-of-doors. On the whole, a high average annual temperature is perhaps the best for the majority of cases.

The temperature of this region, particularly Arizona, is higher by an average of 20° to 25° in the summer, and 30° to 40° in winter, than that of the eastern and north central States, yet the

humidity is so low in summer that the sensible temperature is much less. As a matter of fact, the sensibility of the human body to heat is really less in Arizona than in New York. A temperature of 110° in Arizona is also much less unpleasant than a temperature of 90° in Chicago. The annual mean temperature for the western division of Arizona for 1903 was something like 74°, which permitted the patient to live in a house tent the entire year.

Altitude.—Altitude does not seem to have any very pronounced influence on tuberculosis. It is true that many cases improve markedly after removing from the East to a high altitude in the mountains. But it is questionable whether the benefit derived is not due primarily to other causes, notably dry air and improved hygienic surroundings.

There are, unquestionably, important blood changes at a higher altitude, and the assimilative powers are temporarily stimulated, but it is open to question whether or not the benefit is not more than balanced by the nervous stimulation and tachycardia produced. In an active state of the disease a high altitude is certainly contraindicated on account of the extra amount of work thrown upon an already weakened heart.

Tuberculosis is practically a universal disease, and it is not at all unlikely that all mankind are more or less susceptible to it, as they are to measles and scarlet fever. The very fact of the universal existence of the disease, as proved by post-mortem work, also proves that the statistics ordinarily given out do not adequately represent the percentage of recoveries, as by far the larger number of cases that recover are never recognized during the course of the disease and are only revealed at the necropsy. As a matter of fact, from sixty to seventy-five per cent of all cases of tuberculosis recover, as proved by necropsies, when death has been the result of other causes. Clinical reports from the modern open-air institutions largely confirm these statistics, and Walther, Detweiler, and Trudeau report from twenty to thirty-five per cent of all cases admitted to their institutions as being cured, as evidenced by absence of bacilli, a return to good general health, and the resumption of the ordinary vocations of life.

Every case of pulmonary tuberculosis embraces two conditions: one destructive, with caseation, sepsis, and its accompanying disastrous effects upon the general nutrition; and the other a process of cicatrization, fibrosis, and repair—the result in any given case being determined by the individual resisting power of the body against the ravages of the disease, or, in other words, the capability of the body to limit the growth and destructive action of the bacilli. To increase this resisting power must be the true solution of the cure of tuberculosis, whether it be by the open-air treatment or by the use of drugs.

The very multiplicity of remedies is *prima facie* evidence that specific treatment of the disease is, to say the least, extremely unsatisfactory. It can at best be used as but an auxiliary to some more far-reaching and fundamentally correct principle. As yet the results obtained from the use of the serums have been practically *nil*. The value of tuberculin, even as a method of diagnosis, is questionable. Any drug that has a tendency to disturb the digestive apparatus is positively contraindicated, and the personal observations of those men who come in contact with large numbers of tuberculous cases bear out the author in the statement that more damage has been done by the use of creosote, guaiacol, ichthyol, etc., than can be counterbalanced by benefits derived.

A successful treatment of pulmonary tuberculosis to-day depends above all upon an early diagnosis and the intelligent application of three vital principles, viz., open air day and night in a suitable climate, good food, and as nearly as possible absolute rest, physical and mental. With these conditions fulfilled most cases of tuberculosis should recover, or at least become so arrested as to be harmless.

Delayed diagnosis so often means to the patient loss of all chance of restoration that we cannot be too careful in all suspicious cases. After gross pathological changes have taken place in the respiratory tract, and bacilli are present in the sputum, the diagnosis is easy, but there is no good reason why pulmonary tuberculosis should not be diagnosticated in the prebacillary stage before even a cough has developed; that this diagnosis is being made much earlier than in past years is

evidenced by the great increase in the number of incipient cases that are now sent to our health resorts and sanatoria. The malaise, loss of appetite, malnutrition, a continued afternoon acceleration of the heart's action, night sweats, and evening temperature are as characteristic and classical of tuberculosis as is the presence of bacilli in the sputum.

When such a case is recognized and put under the proper hygienic surroundings, in a climate admitting of an outdoor existence, the patient should recover, but if the disease is not diagnosticated until a secondary infection has taken place, and he has rigors, high temperature, profuse expectoration, and the other symptoms so common to advanced cases, no change of climate, or change in his method of living, can do more than prolong life. It is the belief of the author that in an early diagnosis lies our only real hope in the successful treatment of this disease.

HYPNOTIC REMEDIES IN MENTAL DISEASE.

DIEFFENDORF writes in the *Journal of the American Medical Association* of November 19, 1904, on this theme. He says that if one must resort to the use of hypnotic drugs, chloral in combination with potassium and sodium bromide, 3 1/3 grains each at a dose, repeated until sleep is secured, is by far the best, unless contraindicated by cardiac complications. The dose should not be repeated oftener than every hour up to 60 grains of chloral, and then not repeated for several hours. Where such complications as fatty heart, valvular insufficiency, athetosis, or myocarditis exist, paraldehyde, though less efficient than chloral, is the best substitute. The first dose should not be higher than 45 minims; it may be increased to 2 drachms, and is given in ice water or whiskey.

Next in efficiency to paraldehyde is chloralamide, which can be given with safety when cardiac and vascular symptoms exist. Its pleasant taste and prompt action, with freedom from depression of cardiac and respiratory centers, make it a valuable substitute for the two preceding drugs. It is best given in from 30- to 35-grain doses in a weak alcoholic solution. It must not be administered in alka-

line or hot media. If all of these hypnotics fail, one will usually succeed with a combination of a large dose of ammonium bromide with a moderate dose each of chloral and morphine. Prolonged, deep sleep is not to be sought for, as this comes only with the general improvement.

There are several forms of insanity in which the insomnia is accompanied by and in great part due to a great pressure of activity. This sort of psychomotor activity and its attendant insomnia is especially characteristic of manio-depressive insanity, but also occurs in dementia precox, particularly the katatonic form, and sometimes in dementia paralytica.

The hypnotic chosen here must subserve the function of a psychomotor sedative as well.

The only satisfactory remedy suitable for prolonged application is the prolonged warm bath—95° to 98° F. The patient remains in this for several hours until the desired effect is obtained, when he is returned to bed. The patient regularly alternates from the bed into the bath as needed, and can remain continuously in the bath without deleterious effects for many days.

Considerable difficulty may arise in keeping the patient in his first bath, and for this purpose a preliminary dose of hyoscine hydrobromate may be administered. But the patient once accustomed to the bath usually likes it.

Where the bath is inaccessible or for any reason inadvisable, and a hypnotic drug must be employed, the best is hyoscine hydrobromate. The chronic character of these psychoses makes it necessary that drugs be employed only to control insomnia and the pressure of activity at the height of the psychosis, or when most needed during exacerbations. Idiosyncrasies for hyoscine are by no means frequent, so that the first dose should be 1/250 to 1/200 of a grain, and it should be employed only with care in asthenic cases and where there is circulatory disturbance. The dose may be cautiously increased to 1/50 grain.

Scopolamine (which is really hyoscine hydrobromate—Ed.) appears to be more uniform in its action and to give equally good results in somewhat smaller dosage, and furthermore, is never followed by depressing effects. It is given in similar

dosage as hyoscine. Where it seems necessary to repeat the dose of hyoscine or scopolamine more than twice daily, it is well to combine it with paraldehyde, which always gives very prompt and satisfactory results.

Cannabis indica is an old and standard remedy for this type of insomnia, but less reliable than hyoscine and scopolamine. It may be administered either alone, 1/3 grain of the extract, or in combination with the potassium bromide, 30 grains of the latter to 5 cubic centimeters of the tincture. The lack of uniformity in the preparations of this drug is a distinct drawback to its use.

Trional and veronal are two drugs that are often employed, but the results are not satisfactory, and their influence tends to wear off. Yet trional combined with paraldehyde sometimes promptly brings sleep and quiet where other drugs fail.

The type of insomnia which is accompanied by and in part due to distressing hallucinations and delusions is encountered most often in melancholia, in some cases of dementia precox, and occasionally in dementia paralytica.

The picture of profound despondency, attended by great mental anguish, lamentation, and agitated restlessness, with marked insomnia, is well known and demands alleviation. The best therapeutic agent at our disposal for this purpose is the deodorized tincture of opium given in the smallest dose that will produce the desired effect, and it may be increased from 20 to 25 minims two and three times daily. Morphine in doses of 1/32 grain repeated five times daily is highly recommended by some and gives better results than when given in 1/16-grain doses three times daily. If good results, it appears within two weeks, otherwise the drug must be gradually withdrawn. It is contraindicated where an asthenic condition of the patient exists and where there is gastric disturbance or albuminuria.

It can be asserted without reservation that opium or its derivatives are not indicated in any other form of insanity unless the condition is aggravated by pain; and in melancholia, unless it does good, it is distinctly harmful.

The rest treatment should be insisted on in all cases of melancholia, and with its application a moderate degree of insomnia

existing independently of prolonged agitation and mental suffering does not demand energetic treatment.

Should the insomnia become troublesome, then the simple hypnotic measures ought to be first employed, as hot liquid nourishment or warm sponge bath at the hour of retiring. If hypnotic drugs seem necessary, either trional, paraldehyde, chloralamide, or veronal usually suffices. The insomnia of the depressive phases of dementia precox and of manio-depressive insanity is best ameliorated by the use of the cold or warm pack. Where there is no success by these means, one may employ the combinations of chloral $\frac{3}{4}$ grains with potassium and sodium bromide $\frac{3}{4}$ grains each; paraldehyde alone, trional, veronal, or somnos. The insomnia of the depressive phase of dementia paralytica is most difficult to control, and often does not yield to any remedy. Chloral with the bromides given in larger doses, paraldehyde alone and in combination with trional, and veronal alone should be tried.

For the extreme insomnia of the exhaustion and infection psychoses, where there is great clouding of consciousness, delirious excitement, and a tendency to an asthenic physical condition, alcohol is most valuable, given in large doses in the form of whiskey and brandy. It is readily added to the liquid nourishment, as forced feeding by nasal or stomach tube is usually necessary in these cases. In employing alcohol in these psychoses, special attention must be paid to the tongue, skin, pulse, and respiration; if the skin and tongue become moist and the pulse and respiration slower, while the delirium subsides, one is justified in continuing the treatment, but absence of improvement demands its immediate cessation. The chief indication here is not to control the insomnia, but to fortify nutrition, guard the heart, and prevent self-injury. This observation may seem unnecessary to many, but the irrational abuse of sedative and hypnotic drugs in these acute psychoses is so often encountered, and occasionally leading to fatal results, that too much stress cannot be laid on it.

Prolonged warm baths are usually successful in controlling the insomnia. In conjunction with them hyoscine in doses of from $\frac{1}{200}$ to $\frac{1}{150}$ grain can be

used with good results. Trional, combined with paraldehyde, is adapted to these cases, but no hypnotic drug should be long continued.

THE RELATIVE VALUE OF THE MEANS AND METHODS EMPLOYED IN ACCOUCHEMENT FORCE.

In the *American Journal of Obstetrics* for November, 1904, ZINKE reaches the following conclusions after having considered at some length the principal methods of accouchement forcé:

1. The graduated steel or vulcanite dilators and the ordinary branched or bladed dilators are mainly employed for the purpose of dilating the cervix or os preparatory to digital, manual, and bag dilatation.

2. The bag or hydrostatic dilators, of which the Champetier de Ribes balloon and its modifications are the most favored, should be employed only when time is not an important element in the case; when the cervix is thoroughly softened, partly or entirely effaced, and an easy introduction of the balloon possible. This form of hystereuryisis contraindicated in central placenta previa and in eclampsia, mild or severe; if, in these conditions, it is determined to empty the uterus, deep cervical incisions, vaginal or abdominal hysterotomy promise the best results for mother and child. To prevent continuation of the cervical incision, a suture may be placed in the upper angle of the wound.

3. The manual dilatation of Harris and the bimanual (digital) dilatation of Bonnaire and Edgar. A soft and partially obliterated cervix and dilatable os are absolute prerequisites for this variety of uterine dilatation. It is to be preferred to hydrostatic hystereuryisis when time constitutes an important element. Under this method the life of the fetus is often lost, and unless great care is observed, sepsis, lacerations, hemorrhage, profound shock, and sometimes even death of the mother, may occur.

4. Deep cervical incisions and Dührsen's vaginal hysterotomy are destined to play a permanent and important rôle in the management of forced labors in the future. Many of the cases now subjected to manual or balloon dilatation will be treated by cervical incisions. It is the method in the presence of sepsis of the

vagina, because the operation is short in duration and can be performed under a continuous flow of an antiseptic solution. An intact cervix, whether hard, elongated, or not, is always an indication for cervical incision. Vaginal hysterotomy is indicated principally when the cervix is the site of malignancy or extensive cicatrization. If there is a palpable difference between passage and passenger, the Cæsarian section should be the choice of the operator.

5. The indications for the conservative Cæsarian section have been so well defined by the author in previous papers that he thinks it needless to repeat them now. Cervical incisions and Dührssen's operation will, however, take its place in many instances, notably in cases of marked prematurity.

6. The Bossi and similar metal dilators, if they are not entirely needless, are certainly very dangerous instruments. From what has been said, it is safe to predict that rapid and complete dilatation will never become a popular method; that sooner or later it will receive universal condemnation, and thus reach its final and well-deserved destination, "the lumber room of obstetric instruments."

SERUM THERAPY IN SCARLET FEVER.

HAMILTON in the *American Journal of Obstetrics* for November, 1904, states that his experience with the serum in the treatment of scarlet fever has been even more gratifying than in puerperal sepsis. In not a single case that he attended, where the serum was given a fair chance, did death result. In an epidemic of about fifty cases, with a large number of malignant ones, the mortality was *nil* where the serum was used from the beginning. The only cases of death, in which the serum was used, were seen late in the disease, and they were mostly complicated. The serum was used only in the malignant form, and in most cases in families where one or more deaths had resulted before this method of treatment was employed. In the milder cases, where the throat symptoms were not so prominent, and in which the temperature was not high, the serum was not used. When we consider the high rate of mortality in the malignant form of this disease, any measure which

produces results so definite and beneficial must be looked upon as a great advancement in medical science.

The author is fully aware that his experience with this serum is much more satisfactory than that of some of his colleagues. However, in the cases where he has used it the results have been so striking that he is inclined to continue to administer it when indicated, with the firm belief that benefit will follow. It is noticeable from the record of his cases that the patients thus treated suffered no unpleasant complications or sequelæ, while some of the milder cases were followed by otitis, nephritis, and rheumatism.

PROBLEMS RELATING TO SIMPLE ULCER OF THE STOMACH.

BEVERLEY ROBINSON states in the *Medical Record* of December 31, 1904, that there is a great difference between the medicinal treatment of acute and chronic ulcer of the stomach. This was pointed out specially by Fenwick, who emphasized the truth of it, and showed how closely it was based upon anatomical and pathological conditions essentially distinctive. In very many cases acute ulcer will be greatly improved and perhaps cured by a relatively short treatment with diet, rest, and the use of a few medicinal agents. No such happy outcome should be looked for in chronic ulcer of the stomach. Here months, and indeed years, may elapse, as we know, before the patients become completely rehabilitated. In the vast majority of such cases, if food be given by the mouth, it should be in the form of milk, just as in the days of Cruveilhier, who first insisted upon its crowning efficacy. As a rule, it is wise to give it peptonized and warmed, rather than raw or cold. In case it is thus allowed, on account of some personal peculiarity, a liberal addition of lime water may be added. Kumiss is not advisable by reason of its acidity. Matzoon or zoolack is less objectionable. Milk, after being heated almost to the boiling point, may be diluted and cooled with the addition of rice or barley water. It may also be made more digestible and soothing with gelatin or isinglass. The former is indicated whenever there is any evidence of bleeding from the ulcer. A

small quantity of arrowroot with milk, a little cream and gelatin, as in Meig's well known formula, are not undesirable at times. It seems objectionable to permit milk in any form, according to Muddock, whenever the gastric contents show little or no hydrochloric acid present. In these cases we should allow albuminized water, beef juice, or light broths, diluted or not with barley water, rice water, or oatmeal gruel.

The writer is opposed in the beginning of treatment to anything further in the way of food. Even the addition of light soups with cereals or vegetables is objectionable, because of possible local irritations or fermentations produced. Indeed, he has little doubt that if all food be interdicted by the mouth for many days, and the patient be nourished solely with properly formulated enemata, he will progress more favorably than if we attempt to give him at first the mildest nourishment in liquid form by the stomach. We know the old-time formulæ of some at least of these enemas with egg, milk, beef extract, whiskey, etc. All of them are objectionable after a time, and produce rectal intolerance. Besides, once every twenty-four hours the rectum must be flushed thoroughly with warm water, to get rid of any remaining and infecting detritus. A bad taste is often complained of by these patients after several days of treatment, and this may cause nausea and even vomiting. Most of the objectionable features of enemata may be gotten rid of simply by giving them warm water, heated to about the temperature of 100° F., and repeated four or more times in twenty-four hours. The amount given each time should be introduced slowly and with very moderate pressure. These enemata may be continued occasionally two weeks or more, without producing any untoward consequence. There is no bad taste in the mouth, the strength of the patient is kept up fairly well, and there is little or no complaint of suffering from excessive thirst.

There is one food which the author has omitted, and which, it is claimed, is especially valuable when hydrochloric acid is deficient in the stomachal secretions, and that is buttermilk, freshly made and freely taken. In several cases its use really appears to have been followed by a permanent cure. It is possible, in view of

the late discovery of a great French scientist, Metchnikoff, that buttermilk in ulcer of the stomach is a true elixir of life.

Of the different medicinal agents, none has received as many encomiums as the salts of bismuth. Of these, the most widely used is the subnitrate. To be of any service it must be given appropriately before food, or on the fasting stomach in the early morning. In any case small, insufficient doses are of very little value. Probably the best way to give bismuth is to suspend it in water, to which is added a little milk-sugar. Cane-sugar should not be used on account of its proneness to acid fermentation. A fair proportion of prepared chalk and lime water may be added, and thus we have an admirable and efficient formula, which is likewise not unpalatable—a decided advantage. The author has rarely, if ever, been disposed to prescribe the silver salts in suspected ulcer of the stomach. The nitrate of silver, we are told by some writers, is useful, and possibly covers over certain sensitive areas, by reason of its decomposition, with the coating of an albuminate film. And in certain hyperesthetic conditions in which there is intolerance for all kinds of food—even in liquid form and most bland—it may be of service. In case the bowels become at all constipated, some natural salt like sulphate of soda may be given, or the liquid form of magnesia, which is preferable because of its well known alkalinity, as well as its aperient qualities.

MEDICAL TREATMENT OF GASTRIC ULCER.

LAMBERT writes on this topic in the *American Journal of the Medical Sciences* for December, 1904. In his opinion the local subjective symptoms of nausea, vomiting, epigastric distress, and pain are best treated by the treatment of the ulcer itself. They usually disappear during the starvation period which should inaugurate every cure. When they return during the course of the treatment they are to be considered as danger-signals that the treatment has progressed too rapidly, and that that individual case must be set back to an earlier period of the cure. Nevertheless, these symptoms may require other remedies for their relief than bismuth or silver.

Antiemetics will often prove of benefit, and anodynes, as codeine, cocaine, and anesthesin, will often control attacks of gastralgia, while morphine should be avoided because it tends to increase acidity. The regular habit of these patients, especially those who have a condition of hyperacidity, is constipation. The most efficient drugs to combat this condition are the alkaline salines, prominent among which Carlsbad water and its salts must be mentioned. Such an aperient given each morning before breakfast is usually sufficient. If there be any serious accumulation in the colon, it may be relieved by the use of oil or water enemata. The condition of anemia will require general treatment, and iron will be needed. One can use the pyrophosphate with considerable confidence of its having no irritating effect. It may be used during the rest-cure treatment as soon as the patient has begun to add other articles of food to his milk diet.

The most constant accompanying gastric complication is a hyperacidity. This may be overcome in a purely symptomatic way by neutralizing the acid, or the more permanent method of modifying its formation may be adopted. The secretion of the acid may be checked and in large measure controlled by the use of atropine or belladonna. The same result may be secured by the use of bismuth, of oil, and of fatty foods generally, or by irrigations with silver nitrate. The adherents of the oil cure of Cohnheim claim that this simple treatment will overcome most cases of pyloric spasm, even when associated with tetany. Such a procedure demands a trial for no other reason than for its simplicity alone. Two other complications are purely surgical in their treatment: the late complication of gastric ulcer, a cicatricial pyloric stenosis, with its consequent motor insufficiency, and a perforation of the stomach, with peritonitis. Surgery can cure the first, and it is a modern triumph that some degree of success is offered in the second, in which form of perforative peritonitis von Ziemssen thirty years ago could only advise as complete a euthanasia as possible.

There remains to be considered the treatment of hemorrhage from the site of an ulcer. This complication may present itself in different degrees of severity. The mildest cases of bleeding, in which

the amount of blood lost is insignificant, may be considered as mere incidents in the course of a disease which is running along smoothly. After any loss of blood which amounts to more than the merest shreds or stains in mucus, discoverable perhaps only by careful chemical analysis of the stools, it is wise to take precautions to avoid irritating food for a day or so. If the blood can be measured by the ounce, a period of fasting should be insisted on as an initial therapeutic measure. This complication is often the first symptom to make these patients realize the severity of their disease, and the therapeutic measures of rest, starvation by stomach, and rectal feeding are frequently begun shortly after a more or less severe attack of hematemesis. If the hemorrhage is not repeated, even if it amounted to a pint or more, the regular routine treatment may proceed without a setback. The hemorrhage may become continuous, or it may be repeated at short intervals in spite of treatment, and may demand surgical interference within a few hours. The bleeding may occur at longer intervals, and possibly be associated with each attempt to begin gastric feeding. Such cases present the most difficult question for decision, whether to call on the surgeon for help or to continue medical treatment. A single large hemorrhage, causing death in a few minutes, is also a possibility, and such a complication is, of course, beyond either medical or surgical help.

The medical treatment of active gastric hemorrhage is simple, but often inefficient, and is directed to giving the blood an opportunity to coagulate, and thus to plug the bleeding point. Absolute rest, local application of ice to epigastrium, and the giving of pieces of ice to be swallowed whole, are of some benefit. The stomach should be allowed to contract, and if it be filled with clots a stomach-tube should be inserted and the organ emptied. There is only one drug which is of service: the hypodermic use of morphine controls the restlessness and air hunger, keeps the patient quiet, and supports the heart action. The use of alcoholic stimulants is contraindicated, and cardiac whips are decidedly injurious. The loss of fluid and the consequent thirst may be overcome by means of saline enemata. A pint of normal saline solution may be injected into the rectum at

hourly intervals, with a fair prospect of its complete absorption, and such enemata may be repeated with advantage for ten or more consecutive hours. A due appreciation of the probabilities of the success of surgery in these cases of hemorrhage, and the utter helplessness of medicine, and of surgery also, unless the case is undertaken early, will change the medical habits and improve the surgical results of the past.

THE MANAGEMENT OF SUMMER DIARRHEA.

The immediate indications for treatment in a case of summer diarrhea are of a triple nature, and every mother, nurse, and physician should know them by heart. They are to stop milk and substitute a bland diet, to thoroughly clean out the digestive tract, and then, and not till then, employ means to check excessive peristalsis and secretion of the intestines.

Removal of Cause.—Castor oil and calomel are both efficient in sweeping out the bowel contents, and each has its special indications and advantages. Where improper and undigested food is known to be the cause or there be blood or much mucus in the movements, castor oil, one or two drachms, acts promptly and relieves irritation. Where there is vomiting, intestinal decomposition, or considerable temperature from absorption, and especially when the trouble has existed some time, calomel may be preferable in doses of 1/10 grain every half-hour up to 1 grain. It is a gastric sedative and intestinal disinfectant, and it favors more normal hepatic action.

Lavage.—Where vomiting plays an important part gastric lavage with lukewarm water or a solution of bicarbonate of soda (1 drachm to 2 pints) may be most useful in cleansing the stomach.

Intestinal Irrigation.—The author has found intestinal irrigation to be necessary less frequently than formerly, doubtless owing to rigid adherence to the rule of stopping milk at once, but it is of the utmost importance where the temperature is ominously high, the toxic symptoms pronounced, and in neglected cases. In conjunction with the administration of laxatives by the mouth, which should never be omitted, nothing compares with it when properly administered in prompt-

ness and efficiency in cleansing the colon and reducing high temperature. Plain water should not be used, but a normal salt solution (1 drachm to 1 pint), employing a fountain syringe and a moderately firm catheter, No. 14E, or a small rectal tube, introduced in the lithotomy position with hips elevated while the water is flowing, some nine or ten inches into the sigmoid flexure or beyond.

The irrigation should be thorough, at least two quarts being used, as it escapes at intervals beside the tube, and if the body temperature be high it may be cool, but if low and there be much weakness, it should be warm. With much congestion, evidenced by blood in the stools, tannic acid (1 teaspoonful to the quart) may be added with advantage. Irrigation gently and skilfully performed with an elevation of the reservoir of not over three feet does not increase prostration, but like other judicious hydrotherapeutic measures stimulates and soothes and is often followed by restful sleep. Retained fluid is, in part, absorbed greedily by the depleted tissues of the body, and thirst is thus relieved.

Intestinal Sedatives and Disinfectants.—Medication of the disturbed digestive tract next demands our attention, with the fourfold purpose of relieving irritation, restoring normal secretion, favoring disinfection, and checking peristalsis, if excessive. The drug which of all others has stood the test of time and experience in meeting the first three at least of these indications, and often the fourth, is the subnitrate of bismuth, which is sedative, mildly astringent, and disinfectant. It has the further advantage of being non-poisonous in the relatively large doses which are necessary. It is often given too timidly, and so ineffectually. Ten grains should be given every hour at first to children under one year of age until improvement occurs with the characteristic discoloration of the stools; then every two hours may be sufficient. It has been a matter of observation that where this discoloration, which is probably caused by the action on the bismuth of hydrogen sulphide in the bowel, does not appear in the stools, it is ineffective.

This may be remedied when required, as suggested by Kerley, by giving lac sulphur in grain doses. The frequency of the movements often subsides under

bismuth treatment alone, but where the number of the stools exceeds six or eight in twenty-four hours, and particularly if they be fluid and large, special medication may be necessary. Opium fulfils this indication, and should be given separately, so that its dosage and frequency may be regulated independently of other remedies. Dover's powders, $\frac{1}{4}$ to $\frac{1}{2}$ grain, every two to four hours stand first, and paregoric, minims 5 to 15, second for this purpose. High temperature and foul stools, indicating retained toxic products, forbid locking up the bowels.—SOUTHWORTH in the *Journal of the American Medical Association*, Dec. 24, 1904.

SOME UNSETTLED AND IMPORTANT PROBLEMS IN THE TREATMENT OF ACUTE LOBAR PNEUMONIA.

The *American Journal of the Medical Sciences* for December, 1904, contains an article on this subject by BEVERLEY ROBINSON. He does not believe in the cold bath, cold pack, or even cold applications locally in the treatment of pneumonia. Occasionally he permits cold sponging if the fever be very high, but as a rule he much prefers the use of tepid or warm water for bathing purposes, to which a moderate proportion of alcohol is added. It seems that the efforts to diminish fever *per se* in the treatment of pneumonia are scarcely ever a primary and essential object, because it is not believed, as a rule, that the muscular changes produced by increased temperature in its relatively short duration, although very high at times, can be very pronounced, and it is believed that the nervous shock caused by the toxin is better allayed with slight or moderate heat than with cold.

For a somewhat analogous reason the author is opposed to large doses of quinine to abate pneumonia or to act as a pronounced antipyretic during the course of pneumonia. On the other hand, he thoroughly believes in moderate doses of quinine when well tolerated by the stomach, as a tonic, as a slight antipyretic, and as a blood disinfectant, throughout the course of pneumonia. In large doses, while quinine does diminish temperature, it decreases heart power and general strength, and therefore is prejudicial to the patient's well-being. Be it added, however, that quinine as an antipyretic

for those who wish to follow out this indication formally is far less dangerous in use than antifebrin, antipyrin, or even phenacetine.

The author is of the opinion that there is weighty evidence to prove that the solution of ammonia is a preparation, used moderately and continuously in pneumonia, of considerable value. Its value is specially shown not as a stimulant—because in that particular he believes alcohol, as whiskey or brandy, to be more desirable—but to keep the blood alkaline and fluid. In this disease, especially in the grave forms and where there is extensive pulmonary consolidation, this is a very important matter. The author has seen many patients in whom, before death and at the autopsy, he has been convinced that heart clot avoided would possibly or probably have meant a life saved. To no one as much as to Benjamin Ward Richardson is the honor due of great insistence upon this important fact, too much ignored to-day in medical writings and medical practice. Large doses of digitalis at any period of the disease are, in the author's opinion, prejudicial to the patient and can never do good. In the middle forms of the disease they are not even indicated from any point of view; in the graver forms and in middle adult life, particularly of most city men, arterial changes contraindicate its use, not to speak of possible granular degeneration of cardiac muscular fiber. Frequently the author has seen the pulse become rapidly very tense and more or less irregular under its use, and the heart action tumultuous, irregular, and forced, as it were, uselessly and vainly. Minute continuous doses of digitalis, given before there are any symptoms of heart failure, may prove useful in warding it off, and when heart failure shows itself it should not be discontinued, but protected as to its action upon peripheral arteries with a moderate amount of nitroglycerin, $\frac{1}{200}$ or $\frac{1}{100}$ grain, given every two or three hours.

We must bear in mind that digitalis is not the drug from which we should expect good effects very rapidly in the treatment of pneumonia. Its action, to be useful, must have time as an element, and if given in small doses its cumulative effects, by reason of slow elimination, do not become prejudicial. Apart from other

considerations, digitalis in anything but small doses will often cause stomachal intolerance. So soon as there is evidence of pronounced cardiac weakness digitalis, or much better, good digitalin and strychnine, should be given hypodermically, and not by the mouth. Medication by the mouth in grave conditions in pneumonia is uncertain and unreliable except for alcohol and possibly nitroglycerin, which do not derange the stomach, and hypodermically may cause considerable local irritation.

In regard to strychnine, while the author values it highly in the treatment of pneumonia, he is satisfied we have to-day often pushed its use to an extreme degree, and in more than one instance in which a 1/30 or even 1/20 grain had been used hypodermically every two or three hours he has cried a halt, because he was satisfied insomnia and delirium were being aggravated, and the heart action not in reality stimulated by this overdose. In more than one instance in the treatment of pneumonia, and where other heart stimulants have been of little or no avail, he is sure he has been of use and helped save life with the employment of the best available preparation of coca. Given by the mouth or hypodermically, it has often been of service when he had almost given up hope. The reason, he believes, that this agent does not more frequently respond to our wishes is because the preparation employed is relatively inert. Many coca leaves, not to say the far greater majority, are dry and of poor quality when first gathered. Further, the wrong variety of leaf from which to obtain the tonic alkaloid of the plant is usually employed. Hence much of the coca used, as wine or extract, contains a large percentage of cocaine, which the author believes has little or no tonic properties, and does not contain the other derivatives most valuable in cardiac exhaustion of pneumonia. Here is not the time or place to speak further on this topic.

It is wisdom to give black coffee frequently in advanced cases of pneumonia with evidence of heart weakness or cardiac degeneration, whenever our coca is unreliable.

There can be little doubt that saline solution infused by the veins or by hypodermoclysis or by the rectum, after a moderate bleeding, has been useful in some

instances. The author gives a warning note as to using too much saline solution by the veins or too rapidly. He has seen death thus occasioned, as Tyson has also, presumably by dilatation of the right heart.

MENSTRUAL PAINS OF VIRGINS— TREATMENT.

Several days before the expected menstrual period TOUVENAIN (quoted in the *Therapeutic Review*, August, 1904) prescribes, three times daily, 15 drops of the fluid extract of senecio vulgaris in a hot infusion of lemons. As soon as the menstrual period appears the patient is put to bed, poultices containing laudanum applied to the abdomen, and suppositories containing 1-15 grain each of extract of cannabis indica and belladonna are inserted. Enemata containing laudanum are also advised, or 10 drops each of tincture of viburnum prunifolium and piscidia erythrina is given four times daily in a hot infusion. For the lumbar pains friction is used with:

Chloroform, 10 grammes;
Oil of musk,
Essence of cloves, aa 5 grammes;
Ether, 15 grammes;
Alcohol, 90 grammes.

WARTS AND MOLES—THEIR TENDENCY TO BECOME MALIGNANT.

The ordinary warts which are so common on the hands of children, and disappear, as a rule, as the child grows older, are not considered by KEEN (*Journal of the American Medical Association*, July 9, 1904), who records twenty-five cases of malignant degeneration of papillomatous growths and moles.

In certain cases, in consequence of injury, or repeated or long-continued irritation to which the warts or moles are exposed—or in other cases without assignable cause—they begin to increase in size, at which time they are already malignant growths, and should be treated as such.

When imperfectly removed, especially if they have already begun to grow, the glands soon become involved, and in a number of cases a general sarcomatosis follows. The danger of waiting until they have begun to grow, and are therefore already malignant, is shown by the fact that even after amputation of a hand

or a foot they will recur in the glands or in the internal organs.

Those which arise from warts proper are generally epithelial carcinomata. In a number of the cases reported, especially those arising from moles, the microscope examination showed that they were unquestionably sarcomata. Their clinical course and the macroscopic appearances are in favor of their sarcomatous nature.

Of the 51 cases of sarcoma reported by Wilson and Kalteyer, 69 per cent had their origin in a mole or nevus. Of the 45 cases of melanosarcoma which had occurred in the London Hospital in twenty years, which Eves collected, 33 occurred in the skin, and of the 33, 26 began in pigmented moles.

Keen emphasizes the need for excision before malignancy begins, including the skin from which they arise. The family physician is the one on whom the responsibility rests for this early removal, as he sees these patients in the premalignant stage, when removal would be easy, the resulting scar would be much less of a deformity than the existing wart, nevus, or mole, and the danger of malignant degeneration would be entirely eliminated.

The 25 cases reported arose on the wrist, sternum, ankle, scalp, toe, abdomen, scapula, the lumbar and dorsal regions of the back, the nose, vulva, elbow, and cheek.

In a number of cases the moles or warts were either congenital or had existed as long as the patient could remember. A few of them arose at about twenty years of age, a few later in life. Malignant degeneration usually began after the mole or wart had existed for thirty years or longer as a harmless deformity, only to become finally a serious menace to life, or even the direct cause of death.

EARACHE.

MAKUEN (*Pennsylvania Medical Journal*, September, 1904) contributes an exceedingly interesting paper under the above title, calling attention to the fact that earache is generally a condition far-reaching in its effect upon the function of hearing.

The common causes of earache he mentions are: foreign body in the external auditory canal, furunculosis or boils in the same region, inflammatory exudate in the

middle ear, and reflected pains due to intranasal irritation, dental caries, tonsillar abscess, peritonsillar abscess, pharyngeal ulcers, and the neuralgias.

Attention is called to the fact that a foreign body sometimes becomes embedded in the tympanic cavity and gets beyond the line of vision. As a rule, when diagnosis has been made, the foreign body should be removed by the syringe. This instrument should hold at least four ounces, and should have a small nozzle, so that the stream may be directed, under the guidance of the eye with reflected light, above and behind the foreign body, the desired ear being grasped by the free hand and drawn firmly upward and backward. Instrumental attempts to remove foreign bodies from the ears of struggling children should never be made.

Furunculosis of the external auditory canal sometimes causes excruciating pain. Poultices do more harm than good. Dry heat in the form of sand-bags is serviceable. These should be made conical in shape, so that they may be inserted as far as possible in the canal, and they should be kept hot. In mild cases a 10-per-cent carbolated glycerin solution may be dropped in the ear and retained by a plug, to give relief.

Free incision in the region of the inflammation, followed by the immediate application of hot sterile water, is the most efficient way of relieving pain. Incision must be deep, and preceded by a thorough irrigation with 1:2000 bichloride solution, after which the meatus is filled with carbolated glycerin solution for a few minutes, and then packed lightly with a sterile gauze drain.

The commonest cause of earache is acute otitis media. If the symptoms are not severe, almost immediate relief may be obtained by the use of the carbolated glycerin solution. A small pencil of cotton should be made to fit into the cavity, and this should be saturated with the solution, and its tip placed in contact with the inflamed drum membrane. In mild cases of middle-ear congestion this serves to abort the disease. Should it fail, as indicated by the increased severity of the symptoms, especially the pain, the drum membrane must be incised with sufficient freedom to admit of the best possible drainage. The operation is a simple one, and can be successfully performed by the

general practitioner. The ordinary antiseptic precautions should be taken. A small-bladed, long-shanked knife is used. The incision should be made from the point of greatest bulging down to the floor of the tympanic cavity. The knife should not be driven in so far as to injure the round window. Brief general anesthesia is generally required, especially with children. In adults no anesthesia is necessary, although some degree of local anesthesia may be obtained by local applications of some solution containing cocaine.

The discharge and blood are swabbed by means of sterilized cotton pledgets. A narrow strip of antiseptic gauze is placed in the canal with its end in slight contact with the incised drum. Abundant and free dressing is applied, which is renewed as rapidly as it becomes soaked. On the second or third day the dressing is removed, and the cavity swabbed out, and a smaller dressing applied. Complete cure may be expected in from two days to two weeks. This prompt incision gives immediate relief, shortens the duration of the disease, and lessens the probability of such unfortunate complications as mastoid and intracranial disease.

LINGUAL GOITRE.

STORRS (*Annals of Surgery*, vol. xl, No. 3) describes a rare disease, which, however, he has been able to illustrate by thirty-three cases collected from literature. It is noted that it occurs oftener among women than men, which is contrasted with the accessory thyroids, which are much more frequent in men. It may occur in any period of life, but it is usually noted between the ages of fifteen and forty.

These tumors are usually placed on the dorsum of the tongue, generally just behind and below the foramen cæcum, but sometimes enclosing it in their growth, and on the median line as a rule; they are round or ovoid, and vary in size from that of a cherry to that of a man's fist. The surface of the tumor is covered with mucous membrane of the tongue. There is generally no ulceration. The troubles caused by it are purely functional, and vary in proportion to the size of the tumor.

The first symptom is generally an uncomfortable feeling at the base of the

tongue, a fulness in the throat, accompanied by a frequent desire to swallow. The voice then begins to change. Deglutition may be seriously interfered with. One characteristic of lingual goitre is the occurrence of profuse hemorrhages. These occur at any time and without any apparent cause. They are unaccompanied by coughing, vomiting, or pain, and the patient is simply aware that her mouth is filled with fluid, which on expectoration proves to be blood. These hemorrhages are due to the rupture of one of the many vessels covering the mucous membrane of the growth. The tumor is painless and elastic, and usually it can be felt only by the finger placed in the mouth.

The prognosis is favorable. Treatment consists in removal. This may be accomplished by the galvanocautery loop, or by incision with enucleation. The latter method is distinctly preferable, and since the tumor is well defined and not adherent, it is accomplished readily. Enucleation through the mouth is the method usually employed. After etherization, the jaws are kept open as far as possible by means of a gag. A silk ligature is then passed through the tip of the tongue for traction, and a second ligature passed through the muscles of the base of the tongue under and below the mass of the tumor. The second ligature renders traction on the tongue quite easy, and after enucleation is of great assistance in controlling the hemorrhage and in approximating the edges of the wound. The tongue is then drawn forward as far as possible until the tumor appears between the incisors. A longitudinal incision is made in the growth, and the tumor enucleated. The redundant mucous membrane on either side of the wound is then trimmed off and the edges brought together with catgut sutures.

SURGICAL TREATMENT OF ACUTE INTESTINAL OBSTRUCTION.

BARKER (*Lancet*, Sept. 17, 1904), delivering an address upon this subject, stated his belief that too much stress has hitherto been laid upon the mere mechanical removal of the stoppage of acute intestinal obstruction, and not enough upon the removal of the putrid material killing the patient. He believes that the older method of emptying the bowel by establishing an artificial anus is unsatisfactory.

as the bowel is in a state of paresis or complete paralysis, and only expels its contents very slowly, and until it is cleaned out the cause of paralysis remains in great part.

He believes the best course in many of these cases, perhaps in all that are within reach of the procedure, is to resect the tract of paralyzed and distended bowel at once.

Regarding the after-treatment of such cases, he advises that the patients should be made to sit up from the first as much as possible, and only to lie down, preferably on one side or the other, for sleeping, so as to overcome the tendency to hypostatic pneumonia. They should begin at once to take a mixture of 10 grains of carbonate of bismuth three times daily. Albumen water, with one drachm of brandy, should be given by the mouth from the first in small quantities. Nutrient enemata and instillations under the skin of normal saline solution or 5-per-cent solution of glucose are recommended as a routine. Half a litre morning and evening may be given if necessary.

CHRONIC NON-SUPPURATIVE OTITIS MEDIA—TREATMENT.

In order that a comprehensive outline of the therapy of chronic suppurative otitis media may be presented, GOLDSTEIN (*Interstate Medical Journal*, October, 1904) makes an empirical subdivision of its stages and development as follows: the early stage, the advanced stage, and sclerosis and rarefaction of the bony capsule of the labyrinth. The earlier the treatment is begun the more prompt and effective, of course, will be the results.

As the nose and nasopharynx constitute the keystone in the pathology of the early stage, the most careful attention should be given to the treatment of this area. The first step is to treat the turgescent mucosa. For this there is applied adrenalin chloride (1:1000) by means of a cotton applicator. A recent retraction of the membrana tympani will usually yield to a few inflations of the tympanum either by the Politzer bag or a catheter. In each instance where inflation is used the membrana tympani should be carefully inspected at every sitting, before and after inflation; and each change in the hearing distance of the affected ear and the plane

of the membrana tympani carefully noted. When exudation is profuse in the tympanic cavity and is not readily drained in this simple way, incision of the membrana tympani may be required. The alkaline nasal spray and saline postnasal irrigation are sometimes effective in toning down the turgescent mucosa. The nasal douche is to be discouraged. Silver nitrate (40 grains to the ounce) applied by a cotton applicator through the nose to the nasopharyngeal mouth of the Eustachian tube often has a beneficial effect; silver salts may be substituted for the more irritating silver nitrate. Pro-targol, in from ten- to twenty-per-cent watery solutions, has a good effect. Goldstein has always been an enthusiastic advocate of the hot unguentum petrolatum spray, used in this class of cases, with a five-per-cent campho-menthol solution, and rendered slightly astringent by a drop or two of *ol. gerani rosæ*. To facilitate absorption of exudate in the tympanic cavity, and to restore the membrana tympani to its normal plane, aural massage of a very mild character, and preferably by a hand masseur, is of no little value. The massage should not be continuous, but should be of about one-half minute in duration, and should consist mechanically of gentle suction to aid the newly aerated tympanic cavity to restore the membrana tympani to its normal plane.

When this middle-ear process is associated with a more advanced nasal pathology, and when hypertrophied turbinates interfere either with proper nasal respiration or with aeration of the Eustachian canal, surgical interference is called for. Septal deflections or projections and neoplasms obstructing the nasal passages, hypertrophied faucial or pharyngeal tonsils, should all receive proper attention and should be removed early in the course of the treatment.

Diathesis is an important element in the etiology, and the general condition of the patient should be given careful consideration. Tonics, alteratives, or other systemic medications are often indicated. It may be necessary to have the patient change his occupation.

The second division, the advanced stage of chronic catarrhal otitis media, includes long-standing plastic exudations and adhesions in the tympanic cavity, retraction

in the membrana tympani, and fixation of ossicles. No matter what means may be employed to loosen adhesions, permanent improvement cannot be obtained unless the exciting cause—the thickened mucosa of the nasal, postnasal, or Eustachian tract—is successfully dealt with. Inflation should be practiced regularly, daily or on alternate days, for a period of five or six weeks if necessary. Where the use of the catheter indicates that the lumen of the Eustachian tube has been impaired, excellent results may be frequently obtained by the occasional introduction of the whalebone bougie. It should be used systematically and regularly. One of proper size should be passed the full length of the Eustachian tube, and left in position for a time varying from one to ten minutes. If the patient complains of continued pain while the bougie is in position, it should be immediately withdrawn. When the bougie is withdrawn, and if there are no contraindications, thorough inflation of the tympanic cavity should follow.

The bougie should be introduced twice each week unless favorable reaction is observed. Unless the patient cannot tolerate it, the next large size bougie may be used, and this plan may be continued and the tubal canal subjected to a gradual dilatation until the diameter of the affected tube is slightly larger than the lumen of the average normal Eustachian tube.

Of the contraindications for the continued use of the bougie, perhaps the most frequent are a feeling of fulness and dullness in the ear, and an increase in the subjective symptoms.

As to massage with any of the more modern machines, Goldstein believes that as good results can be obtained with the simple hand piston pump and pneumatic speculum.

Recent fixation of the ossicles and slight adhesions may be broken up by repeated massage, whether by a hand masseur or with the electric massage pump; long-standing adhesions often resist every form of mechanical massage.

Of the operative treatment to be favorably considered, tenotomy and intra-tympanic severing of adhesions is the only one which has partly stood the test of time.

Of medications to the aural tract, special mention is made of a 10-per-cent solution of camphomenthol in benzoinol, a

few drops of which may be injected through the Eustachian catheter and forced by compressed air into the tympanic cavity. Iodine, carbolic acid, and glycerin may be used in a similar manner.

In otosclerosis, it may be well to advise the patient that there is no beneficial form of treatment. Before making this admission, however, a careful differentiation should be made between the hypertrophic and the sclerotic forms of otitis media chronica catarrhalis.

FRACTURE OF THE ELBOW IN CHILDREN—TREATMENT.

In a lecture on fracture of the elbow in children, LAPORT (quoted in *Treatment*, October, 1904) points out that oblique fractures are on the external side, and run from above downward, and from without inward, involving the trochlea to a greater or less degree. The external fragment is carried upward and outward; an increase is noted in the transverse diameter of the elbow, with more or less swelling and ecchymosis, and abnormal movement and crepitation may perhaps be obtained. The outer fragments may undergo malposition transversely, so that the articular surface is turned forward or even upward, rendering replacements very difficult. This fracture is the origin of cubitus valgus.

In the second variety of fracture, the supracondyloid variety, a transverse fracture exists. It is often wrongly described as an epiphyseal displacement. The upper fragment projects in front and below, while the lower, with the bones of the forearm, is carried upward and backward. This fracture is not infrequently mistaken for a dislocation, and for this reason the relations of the olecranon and condyles should be carefully made out. When the upper fragment is below and behind this is called fracture by flexion, a rare variety.

The danger common to all these fractures is that of vicious union. In the majority of cases a good result can be obtained. Callus is apt to produce limitation of movement and some shortening. The latter is unimportant so far as movement is concerned, but there will probably be some alteration of axis of the upper and lower arms, giving rise to cubitus varus or valgus. Nerves—radial, median,

or ulnar—may be involved in the fracture. Treatment of these fractures is still a matter of question.

Fixing on a splint or in plaster for three weeks, and then wearing the arm in a sling, is recommended. Massage is actually harmful in these cases, owing to the readiness with which the periosteum in children throws down new bone. Occasionally putting up these fractures in a position of forced flexion produces beneficial results.

CANCER FACTS AND CANCER FALLACIES.

SNOW (*Lancet*, vol. clxvii, No. 4229) calls attention to the progressive increase in mortality from cancerous disease in all civilized communities, citing as a proof thereof a formidable array of figures. A careful analysis of the figures, however, would probably show that there is less than seems apparent at first glance.

As to his fallacies, he seems grieved that the public credit the medical profession with complete ignorance, and utter incompetence to eradicate it surgically or to ameliorate it medicinally.

It is noted that the idea of cancer being an inherited malady has long since been disproven.

Mr. Haviland has attributed to towns situated on rivers that periodically overflow their banks a special proclivity to cancer. This, however, is not borne out by an investigation of such towns. Nor does cancer show any relation to any condition of soil, climate, or food, excepting alcohol.

DECAPSULATION OF THE KIDNEYS.

Upon the basis of investigations conducted to determine the cause of the puzzling cures and improvements following renal decapsulation, THELEMAN (*Post-Graduate*, vol. xix, No. 10) concludes that a new capsule is formed in a relatively short time—on the one hand from the remnants of the old capsule left at the operation, and the septa radiating into the kidney parenchyma, and on the other hand from the fat capsule.

Decapsulation exerts upon the renal parenchyma no destructive influence worthy of mention. As to whether the operation favorably influences the clinical features of the disease, a transitory im-

provement, depending upon the temporary relief of tension, is of course plausible. Experiments thus far conducted on dogs, however, have not demonstrated an increase of vascularity in the new capsule, and as the former anatomical conditions have been restored even after fourteen days, it is very questionable whether a permanent cure can be obtained in man.

The clinical results thus far obtained are by no means unassailable. The severe cases operated upon by Edebohls died; the mild ones have been improved, and some have recovered. At all events, the question whether the mild cases might not also have been cured without operation is admissible. Finally, the injurious effects caused by chloroform narcosis should also be borne in mind.

MORTALITY FROM PUERPERAL SEPSIS.

COWEN (*Intercolonial Medical Journal of Australasia*, vol. ix, No. 8) contributes some interesting statistics on this topic. In the first place he criticizes Dr. Gallibin, who, while proving a satisfactory improvement in the general mortality from puerperal sepsis in the period from 1881 to 1900, neglects to note that there is a decline in the birth-rate for London of 17 per cent. Williams's recent contribution ends with the statement that "we are still face to face with the fact that the childbirth mortality has not at all diminished within the last twenty years." At the Rotunda, for 1900-1901, in 610 confinements, there were but three deaths, only one of which could be fairly assigned to the obstetric practice of the Institution. At the British Lying-in Hospital, during thirteen years (1880 to 1892), in 4948 cases, there were 10 deaths from septic causes, or a rate of 2 per 1000. At the same institution, for the eleven years 1893 to 1903, there were only three deaths from septic causes out of 5766 cases, or a death-rate of .5 per 1000.

In the Woman's Hospital of Sydney there were in the last ten years 3891 cases attended by officials of that institution, and not one single death from sepsis, the total mortality from childbirth in the state having been reduced one-half by the practice of the hospital.

Jardine, dealing with the practice of the Glasgow Maternity Hospital for the period of thirty years from 1869 to 1898,

states that the death-rate from septicemia, among out-patients, fell from 1 in 475 in the first decade to 1 in 1440 in the third—these results being obtained under the most hopeless of general conditions.

Among other results are quoted those at Queen Charlotte's (outdoor), .5 per 1000; British Lying-in (outdoor), .10 per 1000; the whole collected from nearly 30,000 cases. In these latter institutions the women are attended in their own homes by trained and skilled midwives. These results have been obtained by rigid adherence to definite rules. The individual should recognize that he cannot hope to accumulate an experience which will justify the methods which have led to results such as these. The immunity from disaster which a less rigid regard for detail has met, it may be in 9 cases out of 100, has fostered the idea that fatal puerperal sepsis is purely a question of luck. This can no longer be maintained, since each case may be the hundredth fatal one.

RED LIGHT TREATMENT OF SMALLPOX.

RICKETTS and BYLES (*Lancet*, vol. clxvii, No. 4229), prompted thereto by some enthusiastic reports concerning its efficacy in the treatment of smallpox, gave a trial of the red light method, but with unsatisfactory results.

The treatment did not prevent fever or suppuration. Patients subjected to the treatment were badly scarred. Even when the treatment is begun early it wholly fails to prevent or to check the normal development of the lesions.

SEMINAL VESICULOTOMY.

FULLER (*Post-Graduate*, vol. xix, No. 10) has performed up to date 33 cases of vesiculotomy without a single death for the cure of seminal vesiculitis and its complicating lesions.

The operation does not leave the sexual function crippled, but rather, by repairing the existing lesion, serves to restore the function of the seminal vesicles and in that way to improve or restore the sexual function. In the majority of instances where the male sexual function is crippled, the trouble lies in a diseased condition of the seminal vesicles. After seminal vesiculotomy the line of incision into the sac closes spontaneously, just as does the in-

cision into the bladder following cystotomy, and after the incision has so closed the power to ejaculate returns. The operation does not cause sterility.

In the performance of the operation great care must be exercised not to wound the rectal wall, the urethra, the bladder, the ureter, and to a less degree the peritoneum.

The operation is not advisable, of course, in tubercular cases.

BUNIONS AND HALLUX VALGUS—SURGICAL TREATMENT.

When the painful symptoms of either bunions or hallux valgus are present to such an extent as to cause nearly continuous suffering, and a constant impediment to locomotion, the demand for operative interference, according to KELLER (*New York Medical Journal and Philadelphia Medical Journal*, Oct. 15, 1904) is imperative. This author uses an operation which eliminates all interference with the tripod of the foot or its normal level, and with satisfactory results in the four cases reported. The danger of ankylosis is comparatively slight, and the operation can be used when the normal arch of the foot is high; the old operation can be done with safety only when the deformity is complicated by flatfoot.

Operation.—A longitudinal incision, two inches in length, is made along the inner side of the foot, exposing the first metatarsophalangeal articulation. The skin and tissues over the head of the metatarsal bone are retracted; the joint is then opened, and opposing articular ends are separated; the periosteal covering over the lateral enlargement and adjoining part of bone are pushed back; and the exostosis with about one-eighth of an inch of the bone is removed by a rongeur forceps, or preferably with a small saw. The tendon of the flexor longus hallucis is freed by blunt dissection from the under surface of the base of the first phalanx, sufficiently to pass a Gigli saw around the bone; the periosteum is pushed back, disarticulation accomplished, and the articular head of the first phalanx is removed. Particular care should be taken throughout the operation to protect the periosteum from needless destruction, and an effort should be made to preserve enough of it to cover the exposed surface of the bone.

A small gauze drain is inserted between the head of the metatarsal bone and the sawed end of the phalanx (this drain is removed after forty-eight hours). The wound is carefully sutured, the toe being maintained at normal extension by a narrow internal lateral splint. Passive motion is begun on the fifth day.

NERVE BLOCKING TO PREVENT AMPUTATION SHOCK.

GESSNER (*American Medicine*, Sept. 24, 1904), stimulated thereto by Cushing's and Crile's admirable study of the blocking effect of cocaine injections against the development of shock from peripheral trauma, injected one grain of cocaine into the sciatic and internal saphenous nerves during the course of an amputation at the middle third of a thigh. He noted that there was complete absence of shock.

WOUNDS OF THE HEART.

Including one case of his own STEWART (*American Journal of the Medical Sciences*, September, 1904) has been able to collect 60 cases of wounds of the heart which have been operated upon, with 38 1/3 per cent of recoveries.

Wounds of the heart may be produced by penetration from without, as by gunshot or stab wounds, or by fractured ribs, and by foreign bodies from the esophagus, stomach, or bronchus. The heart may burst as the result of blunt force to the thorax or epigastrium with or without laceration of the pericardium, and it may rupture spontaneously (disease of myocardium or coronary artery, neoplasms, gummata, echinococci, abscess, aneurism, etc.).

Of the cases recorded, 55 were stab wounds, and 5 gunshot wounds. Two of the gunshot wounds recovered; in two of the fatal cases the posterior wound was not sutured. As late as 1903, however, Wolff advised expectant treatment for wounds of the heart.

The symptoms are those of acute anemia or of compression of the heart, depending upon the escape of blood into the pleural cavity or externally, or upon its retention in the pericardium. In some cases the patient may walk or even run for a considerable distance before falling to

the ground. On the other hand, a patient may present marked symptoms without serious injury. In any case there may be nervous symptoms, such as vertigo, syncope, convulsions, vomiting, or hemiplegia. The nervous phenomena are said to be more common in injuries to the left ventricle, and to be due to anemia of the spinal cord. Respiratory difficulties are more marked in wounds of the right ventricle, but may be due to nervous influences, pneumothorax, or compression of the heart. Hemoptysis is rare, even if the lung is injured.

When the blood escapes into the pleural cavity (the pleura was injured in 57 of the 60 cases), there will be in addition to the symptoms of anemia the signs of a pneumothorax. Palpation may detect the apex beat. A splashing sound indicates blood and air in the pericardium. A whizzing sound, due to the presence of air in the pericardium, is also described. In some cases a friction sound may be heard, and in others a bruit not unlike that heard over an aneurism. The heart is apt to be irregular, and in many cases the pulse is below 100.

When the bleeding is external, the stream may be continuous or in jets. Slight increase in cardiac dulness is to be expected. The respiration may be quiet until the end, and physical examination of the lung may reveal little abnormal.

When the blood is confined to the pericardium the pulse is exceedingly feeble, and the apex beat can neither be felt nor heard. There may be a splashing sound, disappearing with the filling of the pericardium, at which time the area of precordial dulness will be vastly increased. The patient is unconscious, and may regain his senses on providing an exit for the blood. Cohnheim demonstrated by animal experiments that the pressure manifested itself first on the auricles and the origin of the great veins, producing venous stasis; this may increase to complete obstruction to the flow of blood, and is manifested by dyspnea and cyanosis. The ventricles pump themselves dry, and the heart finally stops.

Death ensues as the result of anemia, compression of the heart, or later from sepsis or functional incompetence. Izzo reports a case of stab wound of the left ventricle which was discharged cured on the twenty-eighth day. A few hours later

the patient died while lifting a heavy body, the scar having ruptured. The possibility of embolism from air or clot should also be thought of.

A diagnosis of injury to the heart may be difficult or impossible without exploration. Of the external wounds in the 60 cases, 39 were on the left side between the second and seventh ribs, sternum, and anterior axillary line, two were in the left midaxillary line, two to the right of the sternum, one in the epigastrium, one under the left costal arch, and 15 not mentioned. Any penetrating wound in the precordium is almost sure to injure the pericardium or the heart. External bleeding may be profuse and spurting from a wounded intercostal or internal mammary, or may be absent in a punctured wound of the heart. Although justified by Rehn, the use of the probe is condemned generally.

Of the 60 cases, the left ventricle was wounded 30 times, with 15 recoveries; the right ventricle 21 times, with seven recoveries; the right auricle once, resulting in death; the apex three times, with one recovery; and in four the chamber wounded is not known. The size of the wound in the heart muscle varied from 0.5 to 7 centimeters. The only safe procedure in doubtful cases is to enlarge the wound, ascertain if it penetrates the chest wall, and if there be symptoms of hemorrhage or "heart tamponage," to operate.

The time elapsing between the injury and the operation is not given in 29 of the 60 cases, 11 of which recovered. Of the remaining cases, 21 were operated upon within the first four hours, with six recoveries, and nine after four hours, with six recoveries—a mortality of over 76 per cent for those operated upon within four hours, and a mortality of 30 per cent for those after four hours. In looking over the causes of death in these cases, and leaving out of consideration two cases in which the interventricular septum was cut, it may be noted that of the cases operated on within four hours 35 5/7 per cent died within twenty-four hours, and of those operated upon after four hours 33 1/3 per cent died within twenty-hours.

An anesthetic should always be employed unless the patient be unconscious.

The heart may be exposed by the transpleural or the extrapleural method, and

various incisions have been recommended for each. By all the extrapleural methods it is necessary to form an osteoplastic flap, containing the sternum, two or more costal cartilages, and possibly two or more of the ribs. By the transpleural method the sternum is not disturbed, and the osteoplastic flap involves only the ribs and the costal cartilages.

The wound in the lung ceases to bleed, as a rule, when the lung collapses, and needs no treatment; if bleeding, it may be sutured.

The wound in the pericardium is enlarged in the axis of the heart by tearing or cutting, and the sac cleared of blood by the finger. In several of the cases attention is called to the fact that the blood coagulated behind the heart. The bleeding from the heart may be controlled by the finger, and the heart may be steadied by the fingers, by forceps, or by sling sutures. In two cases the sutures tore out. Should the heart cease to beat during the manipulation, it should be sutured quickly and massage performed.

A round-curved intestinal needle is generally recommended. Silk was employed in 26 cases with 2 recoveries, catgut in 9 with 5 recoveries, celluloid in one with recovery, and in 24 the suture material is not known. The highest number of sutures employed was eleven. Silk has the advantage of being easier to manipulate and more certain to hold. It has been proven that catgut will last long enough to repair the wound. The continuous suture is mentioned in three of the cases with two recoveries. It may be applied more rapidly than the interrupted suture, and presents fewer knots on the surface of the heart. The sutures are inserted at intervals of one-eighth of an inch deeply into the muscle, but must not penetrate the endocardium. In dogs, Sherman found it a difficult matter to penetrate the endocardium with an ordinary curved needle. After tying, the ends should be cut off one-quarter of an inch from the knot to guard against untwisting. Diastolic suture is difficult and unnecessary.

Of four cases in which the coronary artery was injured, the writer's case was the only one to recover.

Any blood which may be in the pericardium is now removed by the finger or sponge, and the pleural cavity cleared of fluid or clots. The pleura and pericar-

dium may be sutured, or both cavities may be drained.

Of the 23 cases that recovered after operation, 11 are known to have been complicated by some form of infection; in only one case is uncomplicated recovery stated. Of the 37 deaths, 16 occurred within twenty-four hours from shock and hemorrhage, and in two of these the interventricular septum had been punctured; three died on the second day, two from infection of the pleura, and one unknown; two died on the fourth day, both from infection, and in one of these the tricuspid valve had been injured; three died on the fifth day from infection, and one on the sixth, one on the fourteenth, one on the nineteenth, and one on the twenty-second day, all from infection; and in five cases the time and cause of death are unknown.

SECONDARY ABDOMINAL SECTION.

CUSHING (*Annals of Gynecology and Pediatrics*, vol. xvii, No. 9) divides secondary abdominal section into the immediate, which is performed for acute affections, and the remote, which is performed for the relief of chronic conditions, even after a lapse of years since the original operation.

The immediate operations are required on account of hemorrhage, obstruction of the bowels, foreign bodies, occlusion of the ureters, sepsis, and drainage.

The remote operations are usually required on account of adhesions, sinus, fistulæ, herniæ, and recurrence of malignant disease.

Symptoms of hemorrhage are usually clear, the principal diagnostic signs being progressive failure of the pulse and increased pallor. The abdomen must be reopened at once. If the bleeding be due to oozing from a raw surface, packing must be applied, the lower part of which may be dipped in solution of adrenalin. As a means of avoiding postoperative hemorrhage, the abdomen should never be closed until the patient has been placed in a horizontal position. In early cases a glass drain placed in the bottom of the pelvis will give precious information, and if not needed can be slipped out in a few hours. Hemorrhage which occurs hours or days after operation is due to the slipping of a ligature. It is as a rule the

ovarian artery which is retracted out of the grasp of the ligature. The uterine artery is so long and crooked that it has little tendency to retract. When symptoms of such late hemorrhage develop, the uterine stumps should be reached and clamped at once, and if the uterus is present, the end of the artery at the cornu is to be inspected. When the clots are bailed out, a large sponge is placed at the bottom of the pelvis, and the search can go on. Nitrous oxide is extremely beneficial under these circumstances, as it saves time.

In operations after vaginal hysterectomy the arteries can be clamped by the sense of touch, as the stumps are plainly perceptible. If the hemorrhage continues, the speculum can be used, and the ovarian stumps felt at the side of the pelvis. The hemorrhage which sometimes ensues on the second day after hysterectomy is venous, and is caused by the pulling apart of the walls by the adherent clamp. It can be controlled by packing with gauze soaked in tannin solution. It will not occur if the clamps are opened an hour or more before they are removed.

Probably the most frequent cause for reopening the abdomen is intestinal obstruction, which may be due to kinks, hernia between the stitches, a forgotten sponge, or paralysis of the bowel. The symptoms are vomiting, which becomes persistent and fecal, with distention, and obstinate constipation. Changes of position and gentle hydrostatic pressure are indicated. Several gallons of water containing soap and a little turpentine should be provided. If the bowels are not opened in this way, the wound should be reopened, and unless the seat of the obstruction be found at once the intestine should be received in hot, moist cloths. When the obstruction is relieved, if the bowel does not show a tendency to empty itself it should be punctured with a sharp knife, thus allowing large quantities of gas and fecal matter to escape.

The bowels are then irrigated with hot salt solution and returned.

Foreign bodies left in the abdomen may cause either sepsis or obstruction. The prognosis is not bad if the condition is recognized early, and a secondary laparotomy performed. No small pad should ever be used in abdominal operations.

If the ureters are ligated, as shown by total anuria, the wound should be opened,

the ligature removed and reapplied in such a manner that these organs are not occluded.

Secondary abdominal operation for the relief of septicemia rarely gives satisfactory results. Cases in which it is most useful are those in which there is a collection of bloody fluid which has not been virulently affected. If anything is to be done, it is to be done at once, unless the fateful rise in the frequency of the pulse is observed. If, when the abdomen is opened, there is a free escape of bloody fluid, this is a rather favorable sign. A dirty, purulent collection in the pelvis is bad, while worst of all is the absence of all apparent cause of septic conditions.

The abdomen having been opened, a large drainage-tube is slipped to the bottom of the pelvis, and irrigation with hot salt solution is made. This irrigation of the abdomen should be careful and complete.

EXOPHTHALMIC GOITRE—SPECIFIC TREATMENT.

Burghart and Blumenthal, of Berlin, mentioned by HOWELL in the *Columbus Medical Journal* for October, 1904, employ a subtractive or neutralizing method of ridding the system of an excess of thyroid secretion in exophthalmic goitre, by utilizing the milk of thyroidectomized goats. In the beginning of their treatment they used the fresh milk in dosage of one liter per day, but later they employed evaporated milk from the same animals with identical results. In all ten patients were treated, and in two the entire train of symptoms typical of the disease subsided, the eyes becoming perfectly normal. The dosage was from 5 to 50 grammes daily of the evaporated product, with no alarming symptoms from the latter dosage, except abnormal slowing of the pulse.

Howell obtained some of the preparation, and now reports a single case. The dosage used was one gramme every three hours until five doses were taken daily. Within the first three hours there was a diminution in the respiratory rate, and a slight sense of drowsiness without loss of strength, with a feeling of well-being. In twelve hours the pulse had dropped to 108; habitually it had been 120. In another twelve hours the pulse had dropped to 93, and remained between

that and 96 for a week, when the supply of the preparation was exhausted.

The nervous element of the disease was kept under control, and the sleep was much more sound. The breathing was decidedly slower, and the tremor of the voice less marked. The struma was unaffected by the short course of treatment. The patient thought there was some receding of the eyes, but this was not perceptible.

DIFFUSE DILATATION OF THE ESOPHAGUS DUE TO CARDIOSPASM.

Under this title TYSON and EVANS (*New York Medical and Philadelphia Medical Journal*, Oct. 15, 1904) give the clinical history of some extremely interesting cases. The etiology of the affection is due, they explain, to degenerative changes in the vagus, or to reflex disturbances from distant foci of irritation. The affection usually occurs in neurotics from twenty to forty years of age. The onset is sudden, and is accompanied by a sensation of burning and stoppage posterior to the sternum. At first the difficulty in swallowing is caused only by solid and insufficiently masticated food, which, however, progressively increases until, at times, no food can be swallowed. At other times certain articles, such as hot liquids or ices, pass into the stomach without any voluntary exertion. At irregular intervals the symptoms may disappear entirely.

The regurgitation of food is characteristic, and occurs immediately or very shortly after eating. In advanced cases, with marked dilatation, food may be retained for many hours without causing discomfort. The esophageal food is regurgitated whenever the patient assumes a horizontal position, especially during sleep. This sign, in connection with a dry cough, which occurs at night on assuming a recumbent position, and is relieved only by regurgitation, is characteristic. There is absence of true vomiting, and inability to raise flatus. The majority of patients are able to swallow food with exertion, or by employing definite mechanical means.

The passage of an esophageal bougie eliminates the possibility of organic stricture. The uniform point at which resistance is encountered and the sudden giving way of this resistance, followed by the further passage of the stomach-tube, indi-

cate spasm at the cardia, in contradistinction to diverticulum. The emptying of fluids contained in the esophagus by the mere withdrawal of the tube from the stomach, without further manipulation, indicates a diffuse dilatation.

The chemical examination of regurgitated food shows an absence of free hydrochloric acid and pepsin, and the failure of proteid digestion and conversion of the starches into sugar. The regurgitated material from a diverticulum is usually in a more advanced stage of decomposition. There is likely to be dulness over the chest posteriorly when the esophagus is filled with liquid, and by means of a mixture of bismuth a skiagraphic picture of the size and position of the dilatation may be obtained.

As to the treatment of this condition, when patients can force food into the stomach, lavage may be indicated to combat the tendency to acute esophagitis. When total obstruction is periodical or permanent, tubal feeding is indicated. When this becomes impossible from either esophagitis or spasm, rectal feeding may be employed, or gastrostomy may be performed.

Electricity, passage of bougies, and retrograde soundings have proved unsatisfactory. The rational treatment is repeated overstretching of the cardia in order to destroy its tonicity. This may be accomplished by the dilating instrument, or by a pneumatic bag.

The prognosis as to the complete restoration of activity is bad, but the condition is not necessarily hopeless.

CHRONIC PROCTITIS AND SIGMOIDITIS.

The treatment of chronic proctitis, by which term is meant a long-continued inflammation of the rectal mucosa, extending to the underlying tissues in some cases, must vary according to the cause of the inflammation. The exciting causes are many, including intense heat or cold, traumatism, operations for piles, injection of internal piles with carbolic acid solutions, drastic purgatives, worms, indigestible foods, irritating discharges from the upper bowel, injury to the mucous membrane, and similar causes.

When the cause lies within the intestine DICKINSON (*Columbus Medical Journal*, October, 1904) prefers giving

sulphate of magnesia in tablespoonful doses in a glass of hot water, repeated every three or four hours, until there are eight or ten bowel movements. After this the colon should be flushed with normal salt solution, the patient being in the knee-chest posture. The fluid can be introduced into the colon easily by means of a Wales bougie passed through the sigmoid flexure. The injection fluid should pass into the intestine slowly, and until the bowel is fully distended, and then retained, if possible, for fifteen minutes before it is expelled. Daily injections should be made thereafter, with the patient in the knee-chest posture, using one drachm ichthyol, three drachms non-alcoholic hydrastis, or ten grains protargol to two quarts warm water. If upon making a proctoscope examination numerous small bleeding points are to be seen on the mucous membrane, it can be mopped with a five-per-cent solution of silver nitrate, or an atomizer may be employed.

The bowels should be regulated if necessary with medicines in cases of constipation. Maltine and cascara, taken in sufficiently large doses to produce one good bowel movement daily, have proven satisfactory.

The diet should be mostly nitrogenous; crust of stale bread, or gluten bread, meats, fish, chicken, eggs, are all good, while potatoes should not be eaten. Small amounts of thoroughly cooked rice are permissible, as are all vegetables containing but little starch or sugar. Hot water drunk half an hour before meals has a beneficial effect.

If the flatulency is great, remedies to control the fermentation must be given, as carbolic acid, salol, pancreatin, etc.

When the exciting cause is without the intestine, as a floating kidney, retroflexed uterus, or a hypersensitive appendix, one must be careful not to promise too much from the local treatments, for perhaps an operation may be necessary before the cure is accomplished. If it is an extremely chronic condition, and modern treatment has been tried without effect, then it would be perfectly proper to operate; but where the case is a subacute one, when the condition has lasted only two or three months, where no proper dietary regimen and local treatment have been carried out, all the therapeutic measures should be tried before any serious operation is under-

taken, provided life and general health are not endangered by such delay.

Some of the results obtained by the employment of electricity are remarkable, and this agent should be employed when feasible.

Where the condition is unquestionably chronic, the patient should not be promised immediate relief, for the treatment sometimes requires months if not years.

THE VALUE OF LEUCOCYTOSIS IN THE DIAGNOSIS OF INTRA-ABDOMINAL SUPPURATION.

In an editorial on this subject (from the *Medical Record*, vol. lxvi, No. 12), based upon a very careful study by Türkkel (*Centralblatt für die Grenzgebiete der Medizin und Chirurgie*, Aug. 5, 1904), it is held that the negative leucocyte count should not be taken as contradicting the diagnosis of abscess. A positive result, however, affords a more certain indication of the presence of suppuration than any one other clinical sign. This applies in particular to intraperitoneal suppuration, originating in the appendix or cæcum, the reaction of the peritoneum to irritants being more rapid and well marked than that displayed by other tissues.

Contributive causes which may produce a leucocytosis must be carefully excluded; repeated leucocyte counts must be made, and leucocyte values of 20,000 or over must be taken in conjunction with other signs of inflammation of the peritoneum before attaching great weight to the white cell count.

THE USE OF CHLORIDE OF ETHYL IN OBSTETRICS.

PLAUCHU (*Annals of Gynecology and Pediatrics*, No. 9, 1904) has used chloride of ethyl in forty obstetrical cases. As to the mode of administration, 10 cubic centimeters of the drug is sprayed into a compress of gauze folded in eight thicknesses. This compress is hollowed in the hand, and is placed over the nose of the patient, who is directed to take several deep breaths. In a minute narcosis is complete.

The drug was employed either as an exclusive anesthetic, or as a preliminary to a more general anesthetic. It was used alone for painful obstetrical examinations,

and in formidable procedures, such as the application of forceps, the rapid extraction by breech, or version, it was followed by comfort.

OPERATIVE REMOVAL OF STONES IN THE COMMON BILE-DUCT.

During the past two months KEHR (*Centralblatt für Chirurgie*, No. 28, 1904) has performed twenty-five operations for gall-stones. In nine of the cases one or more stones were removed from the common duct.

In the cases in which the stone occupied the retroduodenal portion of the duct, Kehr first excised the gall-bladder and exposed the cystic and common ducts as far down as the duodenum, when an attempt was made to push the stone upward and remove it with suitable forceps through an incision in the supraduodenal portion of the duct. In two cases this maneuver was greatly facilitated by mobilizing the duodenum by Kocker's method.

In three cases, however, transduodenal choledochotomy had to be performed, as Kehr believes that an incision never should be made in the retroduodenal portion of the common duct. The duodenal papilla was first grasped with two forceps, then incised, and the stone removed. Kehr then introduced a pair of delicate forceps into the papillary incision through the common duct to the supraduodenal incision, where the forceps were made to grasp a small strip of moist gauze. In every case, on withdrawing the forceps and gauze, several small stones and fragments of stones, which could not be palpated nor felt with a sound, were extracted from the common duct. In one instance the swabbing was performed five times before the duct was emptied.

The operation is completed by inserting through the supraduodenal incision one small rubber drainage-tube which extends to the duodenal end of the common duct, and a second tube which runs upward to the liver. The incision in the duodenum is sutured and covered with omentum.

In each of the three cases operation consisted of cholecystectomy, incision of the cystic and supraduodenal portion of the common ducts, duodenotomy, papillotomomy, swabbing of the common duct, and hepatic and common-duct drainage. The duration of the operation varied between one and one and a half hours. The three

cases in which the common duct was swabbed out made as uneventful a recovery as the remaining six cases of common-duct stone. A duodenal fistula was not observed in any of the cases.

FRACTURES TREATED BY TEMPORARY NAILING.

The bloodless reduction of fractures of the lower end of the humerus has been attended by so many difficulties, and was so frequently unsuccessful, that NIEHAUS (*Archiv für klinische Chirurgie*, Bd. 73, Heft 1) was led to reduce the fragments by open operation and secure them in position by the temporary introduction of nails. This method has been particularly serviceable in children.

With the forearm slightly flexed, and beginning at a point on the outer side of the arm about 6 or 7 centimeters above the external epicondyle, a straight incision is carried downward over the epicondyle across the joint to a point on the back of the forearm about 2 centimeters below the tip of the olecranon. The upper part of the incision exposes the humerus anterior to the triceps. Below the epicondyle the capsule of the joint is split in the direction of its fibers just posterior to the head of the radius. The anconeus muscle is split in the direction of its fibers, thereby exposing the outer surface of the ulna. The ulna is then divided above the coronoid process at right angles to the sigmoid notch by means of a chisel, care being taken to leave intact the periosteum at the inner side of the ulna. The soft parts are separated carefully from the external epicondyle, and the whole extensor mass with the attached olecranon is retracted outward and backward, thereby exposing the line of fracture. The retraction of this flap in fractures at the lower end of the humerus is rendered simpler by the periosteum and capsule having been torn loose from the posterior surface of the humerus as a result of the trauma.

Reduction of the fracture is easy even after several days. The lower fragment is secured in position by means of two nails. One nail is inserted in the groove between the capitellum and epicondyle, and is driven from below upward and from without inward through the external condyle, the line of fracture, and the distal end of the diaphysis of the humerus. The

second nail penetrates the paraperiosteal tissues at a point on the mesial surface of the ulna at the same level as the line of osteotomy of the olecranon, then enters the inferior surface of the internal condyle close to the trochlea, and converges toward the first nail as it passes through the internal condyle, the line of fracture, and the lower end of the proximal fragment. Both nail heads project from the wound in the soft parts. A few sutures secure the musculo-periosteal-cutaneous flap, which incidentally holds the olecranon in position. A splint usually is unnecessary. The nails are withdrawn on the fourth to the seventh day. Even then a fixation dressing is not needed.

The nails are made from nickel-plated steel in various sizes and lengths. Two nails are used in each case in order to prevent rotation and overlapping of fragments. The final results were excellent in all cases.

With slight modifications of technique the writer has employed the same method for other fractures and after resection of the knee-joint with equally good results. The operation is technically simple and does not require much time for its performance. Union takes place more quickly than by any other method.

OPERATIVE TREATMENT OF PROLAPSE OF THE RECTUM.

BECKER (*Beiträge zur klinische Chirurgie*, Bd. 61, Heft 1) has performed Rehn's operation for prolapse of the rectum on eleven patients. A circular incision is made around the anus at the mucocutaneous junction. The mucous membrane is dissected free from the remainder of the prolapsed rectum. Five or six sutures are then introduced through the skin at the anal margin to fold up and secure the prolapsed muscular coat just within, or above, the more or less relaxed external sphincter which serves to support it. The mucous coat is then trimmed off and united to the cutaneous margin. The line of suture is covered with a thick layer of dermatol in two-per-cent boric solution. Four of the patients were adult males, and seven were children from two to four years of age, having a prolapse from 6 to 10 centimeters in length. All the cases were cured and have remained free from recurrence.

STAB WOUND OF THE HEART.

SMITH (*Southern California Practitioner*, September, 1904) reports the case of a man, aged twenty-two, who was stabbed in the right ventricle, and who was brought to the hospital thirty minutes later. At that time the radial pulse was imperceptible. Operation was at once performed.

The external wound was between the fourth and fifth ribs, two inches to the left of the sternum. The first skin incision was followed by cessation of respiration, requiring artificial measures for four minutes. Two inches of the fourth and fifth ribs were resected. Bleeding became profuse. A portion of the sternum was then taken away. The opening into the pericardium was enlarged, and then the puncture of the heart was felt. The heart was held with forceps at the edge of the puncture and the wound brought into view.

The laceration was ragged, and parallel with the heart muscle and fibers. It was closed by continuous silk suture. The pericardial sac was flushed out with normal solution, and was then closed by suture.

The operation lasted fifty minutes, and the patient during it was given normal salt solution in both thighs. As the laceration was closed a perceptible change in the radial pulse was noted.

Thirty minutes after operation the patient was fully out of the ether, and the pulse was fairly strong and regular, registering 90. Seven days after operation the patient died. Autopsy showed that the heart wound was completely closed. The cause of death was pericarditis.

TONSILLOTOMY—HEMORRHAGE
FOLLOWING.

JARECKY (*Medical Record*, April 30, 1904) outlines the best methods in hemorrhage following tonsillotomy.

Wounding of the anterior pillars can always be avoided by separating them from the tonsil by means of a blunt hook, or by a knife specially made for that purpose. The bleeding from wounding the pillars is slight, but usually persistent. It may be controlled with the galvanocautery.

Ulceration is usually the cause of secondary hemorrhages. The parts, after

operation, should be sprayed with some mild solution, as Seiler's, Dobell's, glycothymoline, boracic acid, etc. The feeding is very important. Nothing should be taken that will scratch the wounded surface or that is in any way difficult of digestion and liable to produce vomiting, thus perhaps reopening the closed vessels.

The best method of operating in any given case will naturally lessen the chances of hemorrhage.

In case of persistent bleeding the parts should be cleaned and a good view obtained. Separating the pillars with a bent probe discloses the character of the bleeding, whether capillary, venous, or arterial.

Locally, for mild cases, ice, a paste of tannic acid and gallic acid, or a saturated solution of adrenalin, may be employed. Internally, suprarenal extract, ergot, or gallic acid can be employed. If the bleeding is severe in an unmanageable patient, a hypodermic of morphine often acts like a charm. If one or two vessels bleed obstinately, they should be seized with a forceps or a tenaculum and twisted.

If the bleeding is from the whole surface of the tonsil or venous oozing, the Paquelin or the galvanocautery should be applied. Sometimes direct pressure with gauze-wrapped thumbs for about half an hour will stop the mischief. With some patients, highly excited from vomiting and bleeding, it is very difficult to do anything; but as soon as fainting takes place the hemorrhage ceases.

At times it may be good to promote syncope, having the patient sit or stand.

Sometimes the remaining stump can be drawn forward and encircled with a ligature, using a transfixion needle if necessary, or passing a purse-string suture around and drawing it together. A good method is to pass two ligatures from the posterior pillars, through the anterior ones, and tying each so that the tonsil is folded on itself, or else makes a good recess in which to pack gauze. The tonsil hemostat is an excellent instrument by which pressure can be made over the tonsil with one part, the other being placed at the angle of the jaw by means of a screw and left *in situ*.

Ligature has been applied to the common, internal, and external carotid with varying success, but which vessel to be tied becomes a question. The tonsillar branch of the facial artery is the vessel

most likely to produce troublesome hemorrhages. The external carotid, whose branches supply the part, would therefore be the one to tie in case such a radical expedient were needful.

As a last resort, in the rare cases in which everything has proved ineffectual, the practitioner is advised to cut down on the tonsil through an external incision, and secure the bleeding points. This is a somewhat complicated procedure.

The following points concerning tonsillotomy should not be forgotten: (a) Troublesome hemorrhages sometimes occur in children. (b) Hemorrhages happen in adults in proportion to the number operated upon. (c) In case of bleeding, use a good light, and clean the parts to ascertain the cause. (d) Anesthetize or use morphine, if necessary, to quiet the patient. (e) Never operate without being prepared to cope with a hemorrhage.

SYRINGOMYELIA—ALTERATIONS IN BONES AND JOINTS.

BORCHARD (*Centralblatt für Chirurgie*, No. 29, 1904) has studied the changes which took place in the bones and joints in nineteen cases of syringomyelia. Pathologically, the changes are essentially the same as those in simple arthritis deformans and tabes, although clinically these diseases are dissimilar, as syringomyelia chiefly affects young individuals, and involves the upper extremities.

Destructive cellulitis leading to supuration, and subsequent deformity of the fingers, irregular enlargements of the joints (especially of the elbow) and scoliosis from muscular relaxation, are characteristic of syringomyelia. The disturbances of sensation are present in the deeper parts to the same extent and of the same severity as on the surface. A vesicular eruption on the arms, a tendency to circumscribed gangrene, and sudden onset of edema (the latter may be followed by localized atrophy of the skin) are rather characteristic of syringomyelia. On the hand the skin often becomes greatly hypertrophied and thickened. Frequent outbreaks of subcutaneous and subfascial phlegmon, leading to necrosis, and characterized by absence of pain and slow recovery, have been noted. The muscles present dense infiltration and tend to undergo ossification. Joint changes con-

sist of thickening of the capsule and hypertrophy of the villi. The parasynovial tissues are also thickened. The effusions into the joint are rich in fibrin, and tend to suppurate. Severe inflammations of the joint are accompanied by only slight pain. The joint cartilages become degenerated. The bones may show atrophy, or hypertrophy, or both may be present in some cases. The hypertrophic process usually predominates. The bones become abnormally soft, large effusions are usually present in the shoulder-joint, the capsule is greatly thickened and distended, and finally dislocation of the head of the humerus with shortening of the arm may occur. An enormous enlargement of the elbow-joint is one of the most striking symptoms. The condyles of the humerus are greatly thickened, while the bones of the forearm are more or less atrophied. Spontaneous dislocation of the elbow is very rare. The wrist-joint may be dislocated, with thickening of the radius and limitation of motion. In the fingers necrotic processes usually predominate, and irregular enlargements of one or all of the fingers are not uncommon.

Trauma is an important etiological factor in this affection. Borchard ascribes it to injuries of the vasomotor nerves, which in turn give rise to the trophic disturbances. Surgical treatment must be as conservative as possible. Evacuation of the articular effusion is accomplished by arthrotomy, as the fluid is too thick to flow through a hollow needle. Resection of the joint is contraindicated, as it mostly results in a flail joint. In cases which have gone on to severe suppuration, amputation should be chosen in preference to resection.

DIABETIC GANGRENE OF THE EXTREMITIES.

HILDEBRANDT (*Centralblatt für Chirurgie*, Aug. 13, 1904) reports seventeen cases of diabetic gangrene which he has observed during the past eight years. This affection resembles senile gangrene, but makes its appearance at an average age of fifty-four and one-half years, while senile gangrene on the average appears a full decade later. In diabetic gangrene the blood-vessels present marked thickening of the intima with atheromatous deposits, around which occur a cellular

exudate, increase of the elastic fibers, thickening of the media, and leucocytic infiltration. These changes cause a partial occlusion of the vessels, the complete blocking being caused by the formation of a thrombus—before gangrene develops.

In some instances the vascular changes favor the development of the inflammatory type of diabetic gangrene. After infection has gained entrance through some slight traumatism, the sugar contained in the body juices acts as a good culture medium for the bacteria. In this class of cases gangrene is preceded by an extensive phlegmonous inflammation.

Surgical treatment consists of limiting progressive inflammation by free incisions and elevation of the extremity. Moist dressings and strong antiseptics should be avoided. Dry dressings with iodoform and hygroscopic cotton should be used. Proper diet and medicinal treatment should be employed to combat the glycosuria. If amputation becomes necessary, it should be performed well above the gangrenous area. Ether anesthesia is indicated. Schleich's infiltration method of local anesthesia frequently results in a recurrence of the gangrene. Esmarch's bandage has the same objection.

In the writer's series of seventeen cases, five belonged to the inflammatory type, and twelve to the non-inflammatory type. Of five cases in which amputation of the leg was performed, two died, one being a double amputation. Of four cases of thigh amputation, two died. The prognosis is affected chiefly by the condition of the heart and the severity of the infection.

TREATMENT OF FREEZING BY SUPERHEATED DRY AIR.

STATZER (*Centralblatt für Chirurgie*, No. 34, 1904) has found that superheated dry air promotes prompt recovery from the milder lesions produced by exposure to extreme cold. In the cases in which freezing is followed by necrosis, superheated dry air tends to sterilize the necrotic mass and hasten its separation. Treatment should be employed for one-half to one hour daily for three to ten days. Recovery is more prompt and less painful than by any other method of treatment. Statzer's results confirm those previously reported by Bies, Ritter, and Haunsa.

VARICOSE VEINS—SURGICAL TREATMENT.

For the surgical treatment of varicose veins MAYO (*St. Paul Medical Journal*, September, 1904) advises the use of a vein enucleator. This consists of a one-fourth-inch ring of steel with a long handle, the whole instrument being not unlike a blunt uterine curette. He also uses a pair of long, heavy forceps which are hollowed out in each blade so as to form, when closed, a long tube about one-fourth of an inch in diameter. The vein is sought for and severed in the upper third of the thigh. The proximal end is ligated. The lower end is clamped an inch from the end, which is passed through the ring of the enucleator, or placed in the tube of the forceps, and the clamps are transferred to the end of the vein. Gentle force pushes the ring or forceps down the vein, held under tension, for 6 or 8 inches, tearing off the lateral branches. The point of the instrument is then forced against the skin from beneath, and a small incision is made through which is pushed the instrument, holding the vein like a thread in the eye of a needle. The vein loop is drawn out of the opening and also from the instrument, which is removed and rethreaded on the vein, and again forced through the new skin opening, following the vein, and is pushed down to a lower point, where another small incision is made, and the same process of removal repeated. The small lateral branches are torn off, and as a rule have enough muscle structure to close themselves. Below the knee the branches are larger and the vein is more adherent, being more superficial, so that only a short distance can be traversed. Hemorrhage is avoided by position. The leg is raised in straight or extended position and supported by the ankle in an ordinary gynecological standard. This position renders the limb partially bloodless, as well as secures elevation and accessibility of the field of operation. Should any branch cause more than momentary hemorrhage, it can be checked by packing the incision for a few minutes, or by holding a pressure pad against the skin, over the region of the bleeding vessel.

In a few cases where the veins are enormously and irregularly dilated, the stripping process is impossible through the whole extent of the saphenous. In such

the Bristol method of torsion removal of the veins by forceps through open incisions is used as an adjunct to the enucleation treatment.

Should there be a persistent eczema after a week's previous preparation, the operation is proceeded with as usual, the ulcer being excised before enucleation of the vein is begun. The ulcerated area is skin-grafted. Then the eczematous area is painted with compound tincture of benzoin, which acts as an aseptic varnish, literally sealing the surface until the incisions themselves have become sealed against infection.

The dressing is applied and the patient placed in bed with the leg slightly elevated by two pillows. In twelve days he is allowed to get up, and wears a supporting elastic porous bandage for a few months.

This method has reduced the time for operation very considerably, and has placed it in the class of relatively trivial operations, although sepsis may render it one of the most serious.

INFANTILE SYPHILIS.

Mercurial frictions, according to *Journal des Praticiens* (quoted in the *New York Medical Journal and the Philadelphia Medical Journal*, Aug. 13, 1904), are well borne by children. The Neapolitan ointment of the Codex, made as follows, is indicated:

Metallic mercury, 500 parts;
Benzoinated lard, 460 parts;
White wax, 40 parts.

M. One to five grammes to be rubbed into the skin.

For an infant the ointment should be rubbed in with a piece of flannel on a different part of the abdomen every morning. The ointment should be allowed to remain. After a month of such treatment it should be suspended for a week and then recommenced, and this procedure should be kept up for a year.

Local lesions may be treated with:

White precipitate, 3 grammes;
Petrolatum, 30 grammes.

M. For local use.

After one year's persistent treatment potassium iodide should be given—10 centigrammes daily for three weeks, ten days' intermission, then three more weeks

of treatment. Every three months inunction should be resumed for two weeks.

Prophylaxis is of the highest importance, and includes the careful choice of a wet-nurse, the forbidding of kissing, and the use of cow vaccine exclusively, with aseptic instruments.

In hereditary syphilis, at the end of a year of inunction, half to one teaspoonful may be given daily of Gilbert's syrup:

Mercury biniodide, 30 centigrammes;
Potassium iodide, 30 grammes;
Distilled water, 50 grammes;
Syrup of cinchona, 950 grammes.

M. Do not filter.

At the end of the second year 20 centigrammes or 3 grains of potassium iodide may be given daily.

The liquor of Van Swieten is sometimes substituted:

Corrosive sublimate, 1 part;
Pure water, 900 parts;
Rectified spirits, 100 parts.

M. Dissolve the sublimate in the alcohol, then add the water. Dose, 10 drops daily for each month of age.

Mercurial injections are useless.

The prophylaxis of hereditary syphilis includes the treatment of parents, discouragement of marriage between syphilitics, and the nursing of the infected child by its mother, never by a nurse.

COLLARGOLUM ENEMATA.

LOEBL (*Buffalo Medical Journal*, September, 1904) finds that collargolum given by enema is no less efficacious than by intravenous injection. The intestine is not irritated, even when one-per-cent solutions are given for fourteen days, and the collargolum is almost entirely absorbed. A cleansing enema given twelve hours later brings away only a slightly blackish fluid.

Having given the enema to two dying patients, and demonstrated its absorption, the author used it in twenty-seven cases, six of which were cases of sepsis of varied origin. Of these four were cured, one was not benefited, and one died. One of the cured cases was a staphylococcemia in which other remedies had failed; and one other appeared hopeless when the collargolum was begun. The fatal case, a tubercular woman, sixty-five years old, whose condition was so desperate that the surgeon refused to operate, showed some

improvement the next day, so that a less seriously ill individual might have been saved. Out of nine cases of puerperal infection five were cured, three were not benefited, and one died. In this series one beginning parametric infiltration with irritative peritoneal symptoms underwent rapid involution, and in five other cases there was an inhibitive effect on suppuration. In one case of obstinate rheumatism, and in four cases of renal and vesical infection, there were no results. Six consumptives with rapidly progressing febrile phthisis, one of them moribund, and all of them entirely recalcitrant to every internal medication, received the enemata without special effect.

The treatment consists of giving the patient, morning and evening, an enema of one or two pints of lukewarm water. Half an hour after defecation, $7\frac{1}{2}$ grains of collargolum in one-per-cent solution is administered by a funnel or syringe. This amount ($1\frac{1}{2}$ ounces) is invariably retained; the bowels usually move only after the cleansing clyster on the next morning. The enemata are given thus for at least eight and not more than fourteen days. No unpleasant by-effects have been observed. The author concludes that the collargolum enemata give the same results in acute infections as does unguentum Credé or collargolum intravenously. It has been effectual when joint affections or phlegmasia alba dolens had appeared.

CLEIDOTOMY.

EDGAR (*American Journal of Obstetrics and Diseases of Women and Children*, July, 1904) believes that cleidotomy, or division of both clavicles in *dead* fetuses, as a preliminary to delivery of the shoulders has never taken its proper place in obstetric surgery, as a valuable means of lessening maternal morbidity and mortality. In cases of generally contracted pelvis or outlet, after the perforation and extraction of the head, this operation renders the subsequent extraction of the fetal shoulders a comparatively easy task, and quickly and completely changes the clinical picture for the better by reducing the bisacromial diameter from $4\frac{3}{4}$ inches to 4 inches.

A pair of heavy, straight or curved, obstetric scissors of the Dubois type are employed, two fingers of one hand being

used to guide the blunt points to the middle of each clavicle. It is necessary, usually, to extend strongly or flex laterally the fetal head so as to give room for the use of the scissors.

INTRAVESICAL HERNIA.

Intravesical hernia consists of an invagination of the wall of the urinary bladder, produced by pressure of a peritoneal pouch filled with intestines. The invagination usually occurs at or near the attachment of the urachus, and comprises a hernial sac, hernial ring, and hernial contents. By contraction of the circular muscle bundles around the base of the hernia obstructive symptoms arise. In a case reported by BLUM (*Centralblatt für Chirurgie*, Aug. 13, 1904) mild obstructive symptoms occurred repeatedly. Blum was enabled to make a diagnosis by cystoscopy. The peristaltic movements of the intestine could be observed through the invaginated bladder wall. This constitutes the only symptom by which the diagnosis can be made before operation. Intravesical hernia may be congenital or acquired.

IMPLANTATION OF SILVER FILIGREE FOR THE CURE OF LARGE VENTRAL HERNIA.

According to PERRY (*Boston Medical and Surgical Journal*, July 28, 1904) the technique of implanting silver filigree for the cure of large ventral hernia is identical with that of autoplasmic repair up to the point of closing the hernial opening. The omentum should then, if possible, be stitched to the margin of the hernial ring. The sac is cut away, enough being left to close over without much tension, with a continuous silk suture. The fat is then excavated to admit a silver wire pad and permit stitching its border to the muscles and fascia. This is done with a continuous silver wire suture of sufficient length to have its starting and finishing points together, thus reducing the rough points to a minimum. This completed, the skin and fat are closed over all by interrupted silkworm-gut sutures. The silver pad should overlap the margins of the opening from one-half to one inch. This plan is permissible only, and indicated only, in the classes of cases where autoplasmic re-

pair is impossible for any of the following reasons: (1) The large size of the hernial opening; (2) long existing hernia; (3) atrophy through pressure and fatty degeneration of the adjacent muscular and fibrous tissues; (4) and most frequently, previous unsuccessful attempts at autoplasmic repair; and (5) in fatty abdominal walls.

The writer reports two cases—the first a postoperative hernia having had an attempt at repair; the second an acquired umbilical hernia. Each was of long standing, with atrophy and thinning of the muscles and fascia, and large hernial openings. Eighteen months after operation in the first case, and fifteen months after operation in the second case, both patients were doing housework.

Close examination shows a firm, solid abdominal wall without suggestion of diastasis. The patients claim to experience no discomfort or consciousness of a foreign body in the abdominal wall, and are both enjoying life thoroughly. The operation is not difficult, and with strict asepsis should be successful.

INTESTINAL OBSTRUCTIONS FOLLOWING APPENDICEAL OPERATIONS.

MCWILLIAMS (*Medical News*, Sept. 3, 1904) has collected 86 cases of intestinal obstruction following appendiceal operations. Of these 57 recovered after operation for the obstruction, and 29 died. He presents the following conclusions: (1) The rarity of intestinal obstruction is noteworthy. (2) It may follow an attack of appendicitis which has not undergone operation. (3) Obstructions may follow the "interval" operation. (4) It is most apt to follow appendicitis with abscess formation. (5) Mechanical obstruction may come on within a short time after the appendicitis operation, when the differential diagnosis from that due to peritonitis may present great difficulties. (6) Obstruction may occur years after the original attack or operation, when it may come on suddenly in perfect health, or be preceded by a period with symptoms denoting "partial" occlusion. (7) There may be several attacks of true mechanical obstruction. (8) The small intestine was occluded in all of the 50 cases where the location was noted. (9) The cause of the obstruction was given in 53 cases, as

follows: Constriction by bands in 28 patients; volvuli in 10; kinkings or angulations in 11; and internal hernias in 4 cases. (10) Earlier recognition of the symptoms, and more prompt relief by operation, will materially diminish the death-rate.

TUBERCULAR ULCERS AND TUBERCULAR LYMPHANGITIS OF THE UPPER EXTREMITIES.

QUAIN (*St. Paul Medical Journal*, August, 1904) reports six cases of tubercular ulcers with secondary tubercular lymphangitis and lymphadenitis. Four of the six cases had mixed infection. The six cases represented all ages. The majority of the patients had been in close proximity to cattle prior to the infection, which took place through suppurating wounds, and was carried to the axilla through the lymphatics. In the cases of average virulence it took at least three months for the infection to reach the axillary glands. The disease was cured in the six cases by radical excision and cauterization.

Tuberculosis of the skin and superficial fascia of the extremities is not of infrequent occurrence, and the clinical history of such cases presents, in the main, similar features.

On the upper extremity the place of predilection seems to be the dorsal rather than the palmar surface of the hand, the former being more exposed to traumatism. A slight bruise becomes infected from an ordinary pyogenic organism. A small abscess develops and discharges for a short time, then granulates up, with a disappearance of the acute symptoms. If a tubercular invasion becomes superimposed upon the pyogenic infection, the tubercular process continues to burrow under the integument. After a few weeks the tissues involved break down, and a tubercular ulcer is found.

The ulcer presents a rather typical appearance. The skin overlying the ulcerative area lies below or above the level of the surrounding healthy skin, according to whether the cheesy product of degeneration is evacuated or not. The color is generally of a bluish or brownish tint. A zone of inflammation about the periphery of the ulcer is not always evident, but this area usually can be seen and felt. The edge of the skin is ragged and thin, and

on probing found to be undermined. The pale granulations at the base of the ulcer are covered with broken-down, cheesy, and necrotic masses, and a small amount of serous exudate. A mixed infection modifies the discharge according to the type of infection. The size of the ulcer may vary from the smallest sinus to large sloughing areas. In depth, it may go through the superficial fascia, but rarely involves deeper structures until very late in the disease.

A tubercular ulcer of this description may continue to spread by a gradual extension of new tubercles, and subsequent breaking down of tissue; or, more commonly, a secondary tubercular infection of the lymphatics may take place. Sometimes a whole chain of lymph-nodes are involved at once, but generally the infection progresses from one lymph-node to the next. At each station a typical tubercular process takes place. This begins with a pretubercular irritation of the lymph-node, which may be shown by some slight swelling and tenderness. Following this irritable stage come the invasion by the bacillus and the formation of tubercles. In the small affected areas degeneration soon takes place, and the numerous points of necrosis finally become confluent until a whole lymph-gland is one homogeneous, caseous, semi-solid mass. There is also present, in every case of tubercular infection of a lymph-gland, a periglandular inflammation. The lymph vessels between the glands may become involved by tubercles. This happens most frequently where a mixed infection is present.

The treatment of the writer's six cases consisted in excision of the enlarged lymph-glands, the inflamed cord-like lymphatics between the glands, and the smaller cavities which did not have a discharging sinus. These wounds were sutured and sealed. Then the ulcers were scraped out and swabbed with carbolic acid and alcohol. In two cases the ulcers were burned with the actual cautery. The granulating surfaces were skin-grafted later in one case.

Local recurrence occurred in two cases. This took place about a month after operation, and consisted in a subcutaneous extension of the disease, at the margin of ulcers which had not been sufficiently curetted and cauterized. It did not occur

in ulcers which had been treated with the actual cautery. In two cases, two or three new subcutaneous tubercles developed in the arm some distance from the previous infection. After excision these did not recur. In no case was there a secondary involvement of the axillary glands after operation. After healing the scars were normal in texture and color, except in one case, where a small cicatricial keloid appeared at the elbow.

Correspondence.

LONDON LETTER.

By GEORGE F. STILL, M.A., M.D., F.R.C.P.

Hematuria is so often a puzzling symptom that to most practitioners the discussion held a few days ago at the Medical Society of London is likely to be of practical interest. Dr. A. E. Garrod in his opening remarks dealt with the varied significance of this symptom. In the first place he pointed out that there are certain conditions of the urine which may easily be mistaken for hematuria; hemoglobinuria, for instance, produces the same coloration of the urine, but differs in the absence of blood-corpuscles, and therefore can only be distinguished by the microscope. Occasionally hematoporphyrinuria, which is produced by overuse of sulphonal, causes a darkened color of the urine, so that blood is suspected, but again the diagnosis turns on microscopic examination. Carboluria produces a dark, brownish color, but the microscope and the ordinary tests for blood will serve to distinguish it. Among the chemical tests for blood Dr. Garrod considered the ordinary guaiacum and ozonic ether test as particularly delicate. Coloration with extraneous pigments is also to be remembered. The case of a boy was referred to, in which a pink urine was produced, together with a story of pain which might have been renal colic, as a pretext for escaping from the tedium of an industrial school. It was discovered that this young but inventive genius kept a piece of turkey-red rag in his pocket for the purpose of soaking it in his urine and so producing the red coloration. After certain pink-colored sweets have been partaken of

freely children not infrequently show a bright pink color of the urine, recognized however by a peculiar fluorescence just like that seen in a solution of eosin.

Hematuria in infants, Dr. Garrod said, sometimes occurs as an isolated symptom, and may be associated with the presence of uric acid crystals or concretions in the urine, but a more important cause is infantile scurvy. It would probably be correct to say that in the majority of cases of infantile scurvy blood is present in the urine at some period of the disease, but often the quantity is so small that it is easily overlooked unless carefully sought. Rarely hematuria in an infant is the only symptom of infantile scurvy, and therefore in any obscure case of hematuria at this age it is advisable to try the effect of the antiscorbutic diet, orange juice, raw meat juice, or potato cream. Dr. Garrod emphasized the fact that in infantile scurvy the diet has sometimes been apparently excellent, except perhaps that the milk has been boiled or sterilized, so that even though the diet may appear to be satisfactory the antiscorbutic food mentioned should still be tried in any doubtful case of hematuria in infancy.

Hemophilia may account for blood in the urine even where there have been no other manifestations of the tendency to bleed; and it would seem that in some cases the hemorrhagic tendency is chiefly or entirely shown in bleeding from mucous surfaces, although the patient shows no special liability to excessive bleeding from skin cuts. In one case of hematuria from this cause treatment with calcium chloride was entirely ineffectual, whereas the first dose of ergot was followed by a cessation of the hematuria. The hematuria which results in some people from eating rhubarb was also mentioned, and a similar occurrence was noted after the ingestion of strawberries.

Curious cases of congenital hereditary or family hematuria have been recorded; in one family no less than twelve brothers and sisters or first cousins suffered with frequent hematuria without any apparent cause.

Lastly, reference was made to those remarkable cases with which most of us are now familiar, in which hematuria recurs perhaps for many months, sometimes with pain, sometimes without, so

that renal calculus is suspected and an operation is done, but no stone is found and operation appears to have been useless, and yet from the time of operation the hematuria ceases and the patient is well. An interesting suggestion was made that in some of these cases the bleeding is due to a localized interstitial inflammation in the kidney with resulting abnormal vascularity; in one case one of the papillæ of the kidney was seen to be unduly vascular and was removed, a proceeding which was followed by cessation of hemorrhage. In London at the present time it is no great rarity to see hematuria in young men as the result of bilharzia hæmatobia contracted during the war in South Africa, the diagnosis resting on the finding of the ova in the urine.

Amongst other causes of hematuria mentioned by subsequent speakers were the oxaluria which sometimes results from eating asparagus, and the renal vascularity which sometimes results from ulcerative endocarditis even where autopsy shows that there is no infarction of the kidney.

The treatment of rheumatism is so often unsatisfactory that any hints which may make our therapeutics more effectual are of value. Dr. Tirard brought out some valuable suggestions at a recent meeting. Aspirin, which has recently been much advocated as a substitute for salicylates, has, he said, no advantage over salicylic acid; it often produces dyspepsia, makes the patient sweat profusely, and sometimes sets up diarrhea. But in gouty people aspirin will sometimes relieve their headaches; it should be given in doses of 10 grains in tablet form, for it is very insoluble in water. More effectual for the pain and stiffness which is sometimes left behind in the joints as a result of rheumatism, after all fever has gone, is mesotan, which should be painted on the skin over the joints with a brush and well diluted with olive oil without water. If it is rubbed on, or mixed with water, it is apt to irritate the skin.

At the Obstetrical Society of London during the past month a discussion was held on the causes of puerperal fever. Bacteriological evidence was brought forward to show that this condition is due usually to streptococcal infection, and it was advised that, unless there was bar

teriological proof that some other micro-organism was the cause of the fever in any particular case, the condition should be treated as the result of streptococcal infection. Active curetting of the uterus is not advisable; the patient should receive a subcutaneous injection of antistreptococcal serum, and the uterus should then be explored with the finger, its contents cleared out, and intra-uterine douches applied. Dr. Horrocks said that in his experience the results of antistreptococcal serum in these cases were very variable; in some cases they were excellent, in others there was no effect, and there was no means of foreseeing whether the serum would do good or not. He considered the character of the discharge as very important; those with scanty, non-offensive discharge were commonly fatal, whereas with abundant, offensive discharge the patient usually recovered. Other speakers were still more doubtful of the value of antistreptococcal serum in these cases; indeed, one speaker stated that not only had he never seen any improvement result from it, but he had seen dangerous symptoms follow its use. Dr. Armand Routh thought that great benefit results from administration of the tincture of perchloride of iron in 20- to 30-drop doses every two or three hours; he also advised that after emptying the uterus its inner surface should be dabbed all over with strong iodine solution if there were any suspicion of puerperal infection.

There was some difference of opinion as to the value of curetting in puerperal fever. It was advocated on the ground that it is a much more efficient method of cleansing the uterus than could possibly be attained by the fingers. It was opposed on the ground that if the infection of the uterine wall is still superficial curetting would only facilitate deeper infection, and if the infection has already reached the deeper parts of the uterine wall curetting is wholly ineffectual.

THE SEPTUM NASI AND ASTHMA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In your valuable journal dated October 15, 1904, you give an abstract of a paper of mine, published in the *Australasian Medical Gazette* of May 20, 1904, on the relation between the nasal mucosa

and the paroxysmal neuroses. Your abstract reads as if I were the originator of the practice of cauterizing the mucous membrane of the septum nasi in cases of asthma. As it happens, I have never yet cauterized the septum nasi for asthma or any other paroxysmal neurosis, not because I do not believe in the treatment (which I do, thoroughly), but because I am strongly of opinion that this powerful therapeutic measure should, for the present at any rate, remain in the hands of rhinologists, or of those who have some special training in the all-important technique.

The practice of cauterizing the *healthy* septum nasi for asthma is due altogether to Dr. Alexander Francis, late of Brisbane, now of London, and is fully described in his work on "Asthma in Relation to the Nose," published last year. My part was purely that of an outsider. Dr. Francis took the widely accepted view that the mechanism of the asthmatic paroxysm consists in constriction of the bronchioles by means of their own muscular fibers; hence he naturally inferred that cauterization of the septum nasi influenced asthma favorably through increasing the stability of the respiratory center. I pointed out that if this view were correct, cauterization of the septum nasi would be applicable to asthma alone, whereas if, as I had argued in a series of papers contributed to the *Australasian Medical Gazette* in 1898, entitled "The Mechanism of the Paroxysmal Neuroses," asthma was simply one member of a long series of vasomotor neuroses, all more or less closely allied in their mechanism, then cauterization of the nasal mucosa would probably have much wider therapeutic potentialities. This anticipation has been to some considerable extent borne out. Several cases of angina pectoris, a few of epilepsy, and at least one of typical migraine can now be quoted by Dr. Alexander Francis and Dr. W. N. Robertson in which cauterization of the septum nasi has been followed by distinctly favorable results. These will no doubt be published later.

I am, etc.,

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LONDON, ENGLAND.

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Original Communications.

THE ANTITOXIN TREATMENT OF DIPHTHERIA, WITH A PLEA FOR RATIONAL DOSAGE IN TREATMENT AND IN IMMUNIZING.

BY B. FRANKLIN ROYER, M.D.,

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In a discussion of the value of antitoxin as a curative agent it is necessary to have a clear knowledge of the prevalence of diphtheria and of its mortality for a period of years preceding and following the introduction of serum treatment. In order to demonstrate to you the death-rate of diphtheria and the attack-rate, we

shall rely largely upon reported cases and reported death-rates, and the ratio between reported deaths and estimated population in large cities in this country. I do this for several reasons: in large cities statistics are compiled more carefully and more reliably than in smaller municipalities; it is much easier to make a collection of a large number of cases yearly and compare them with other years, or to compare groups of years with groups of years under different conditions; in large municipalities, particularly in medical centers, serum treatment has been universally adopted, and has been used with greater uniformity by the medical profession. For this study I have chosen the statistics from New York City, Brooklyn, Philadelphia, and Chicago, and a table from

the twelfth census, and for the further study of the value of antitoxin I have taken the same statistics from these centers before and after antitoxin had come into general use, and to them I have added hospital statistics from Boston, London, and Philadelphia hospitals, taking diphtheria classified by location of the disease, under operative procedure, by age periods, by year periods, and by comparing groups of year periods with certain other groups of year periods. Certain of these statistics would seem to court criticism; others are so graphic in the lesson they teach us that none, I am sure, will question their truthfulness. The death-rate in hospitals, I feel, is entirely reliable. The death-rate when computed in percentage by comparing with attack-rate in city statistics is perhaps not quite so reliable, because not all cases have been reported in time gone by, and perhaps a few escape the official report of the health bureau even to this day.

Let us turn to the statistics of New York City, studying them for a period of years, from 1888 to 1902, the latter year being the latest statistics I have been able to obtain.

OLD CITY (MANHATTAN AND THE BRONX).

Diphtheria Croup and Membranous Croup.

Year.	Cases.	Deaths.	Death-rate per 100,000.	Case fatality.	
1887	5,928	3,056	207.0	54.94	Total cases 50,758 Total deaths 19,186 Case fatality (7 yrs.) 37.8% Average No. cases... 6,344 Average No. deaths. 2,398
1888	6,491	2,553	167.7	39.3	
1889	6,489	2,291	146.2	35.3	
1890	4,604	1,783	110.6	29.7	
1891	5,364	1,970	118.7	36.7	
1892	5,184	2,105	128.3	40.6	
1893	7,057	2,558	145.5	36.2	
1894	9,641	2,870	156.6	29.7	Total cases 75,123 Total deaths 10,982 Case fatality 14.61% Average No. cases... 9,390 Average No. deaths. 1,372 Total number of lives saved 8,204
1895	10,505	1,976	105.2	18.8	
1896	11,399	1,763	91.2	15.4	
1897	10,996	1,590	81.0	14.6	
1898	7,593	923	46.7	12.2	
1899	8,210	1,065	53.9	13.2	
1900	8,364	1,276	62.1	15.3	
1901	7,728	1,227	58.5	15.9	
1902	10,430	1,142	53.4	10.9	

It will be seen in studying this table that the average yearly death-rate, from 1887 to 1894 inclusive, was 2398; the average attack-rate reported to the Health Commissioner was 6344; the percentage of deaths by attack-rate was 37.8.

In Brooklyn the following table shows clearly the mortality statistics in diphtheria during the same period:

BROOKLYN.

Diphtheria Croup and Membranous Croup.

Year.	Cases.	Deaths.	Death-rate per 100,000.	Case fatality.	
1888	2,297	1,385	164.2	55.9	Total cases 16,448 Total deaths 8,990 Case fatality 54.67% Average attack-rate 2,349 Average death-rate. 1,284
1889	2,798	1,467	180.9	52.4	
1890	2,185	1,283	150.6	58.7	
1891	1,850	1,180	185.8	63.8	
1892	1,829	1,137	126.6	62.2	
1893	1,672	978	105.3	58.5	
1894	3,812	1,660	173.0	43.5	
1895	4,687	1,454	146.6	31.0	Total No. cases 32,214 Total No. deaths 7,606 Case fatality 23.61% Average No. cases... 4,028 Average No. deaths. 951 Total number of lives saved 2,664
1896	5,231	1,810	127.8	25.0	
1897	4,147	996	94.1	24.1	
1898	3,221	745	68.9	23.1	
1899	2,894	744	65.7	25.7	
1900	3,856	863	73.7	22.4	
1901	3,942	732	60.5	18.6	
1902	4,236	782	61.0	18.0	

Here the average attack-rate from 1888 to 1894 was 2349; the average death-rate was 1284; the percentage mortality, compared with attack-rate, was 54.67 per cent.

"In Chicago the treatment by the Department of Health was begun in October, 1895, and the two periods therefore include 1888 to 1895 as 'before,' and 1896 to 1903 as 'during.'"

"Following is a simple graphic showing of the two periods:

TOTAL DIPHTHERIA DEATHS BEFORE AND DURING ANTITOXIN TREATMENT.

Before 11,488.

During 6,088.

Reduction in actual number of deaths, 5,400—or 47 per cent.

AVERAGE ANNUAL POPULATION.

Before 1,100,881.

During 1,672,042.

DEATHS PER 10,000 OF POPULATION.

Before 12.45.

During 4.55.

Increase of population, 52 per cent.

Decrease of diphtheria deaths, 63.4 per cent.

"Chicago's statistics show from 1888 to 1895, inclusive, 11,488 cases, and a yearly average death-rate of 1436, while from 1895 to 1903 a total of 6088 deaths, or a yearly death-rate of 781. Taking the total number of deaths for each eight-year period in Chicago, we find a saving of 5400 lives, or an actual reduction in number of deaths of 47 per cent, and when we in turn make an allowance for the increased population, the reduction of lives is actually 52 per cent."

In Philadelphia, where we were a little slow to take up the use of antitoxin, and where we know that antitoxin was first used only in the more severe types of

cases, we cannot be said to have used this agent with any degree of uniformity before the beginning of 1897. For this reason I have not taken the years 1895-96, believing them to be too little influenced by antitoxin to count as antitoxin years, and yet influenced too much to place with a group of years in preantitoxin days. The following table shows a total of 19,826 cases reported to the Board of Health during the period from 1888 to 1904 inclusive, with a total number of deaths of 8825:

average of 1872 each year. The total number of lives saved during this eight-year period is 8204; the actual reduction in deaths without allowance for increase in population is 42.75 per cent.

In the city of Brooklyn, where antitoxin was not taken up quite so early or so earnestly, we have during the eight years ending in 1902 a total of 7608 deaths, or an annual death-rate of 951, as compared with 1284 during the seven years preceding the introduction of serum. During the same interval 32,214

Year.	Cases reported to the Board of Health.	Deaths from diphtheria group.	Per cent mortality.	Estimated population.	Death-rate per 100,000.	
1887	Not recorded	868		86	Summary, 8 years, 1887 to 1904, inclusive. Total cases, 7 years..... 19,826 Total deaths, 8 years..... 8,825 Average yearly population..... 1,064,277 Average yearly deaths..... 1,103 Case fatality, 7 years..... 40.18% Deaths per 100,000..... 108 (Cases for 1887 not recorded.)
1888	1170	828	58.24		81	
1889	1455	727	50.00		88	
1890	1820	945	51.81		90	
1891	2251	1282	41.89		127	
1892	5051	1757	34.78		165	
1893	3471	1156	33.30		103	
1894	3808	1896	36.68		122	
1895	2833	1249	35.00	1,108,994	114	Summary, 1887 to 1904, inclusive. Total cases..... 32,455 Total deaths..... 6,972 Average yearly population..... 1,809,118 Average number of deaths..... 871 Case fatality..... 21.48% Death-rate per 100,000..... 54
1896	3085	1155	32.18	1,108,798	91	
1897	5779	1474	25.50		121	
1898	4876	1154	24.67		76	
1899	4361	694	22.68		78	
1900	5098	1042	20.47		80	
1901	3078	645	17.97		48	
1902	2444	515	25.08		86	
1903	3043	608	19.98		44	
1904	3456	542	15.68		38	

The average yearly population during this period was 1,064,277; the average mortality per 100,000 was 103; the average yearly death-rate was 1103; the total mortality computed from reported cases was 40.18 per cent; while during a period from 1897 to 1904, inclusive, the average yearly population was 1,809,118; the average number of deaths, 871; the total number of reported cases, 32,455; the total number of deaths, 6972; the mortality percentage, 21.48; the death-rate per 100,000 was 54. It will be seen then, by comparing the latter group of eight years with the earlier group of eight years, that we have a total saving of 1853 lives, or a total reduction in the number of deaths of 21.97 per cent. The increase in population during the same period has been 23 per cent, and should we allow for this increase in population, the decrease in death would be 35.92 per cent.

In New York City, during the eight years from 1895 to 1902 inclusive, a total of 10,982 deaths are reported, with an

average of 1372 each year. The total number of lives saved during this eight-year period is 8204; the actual reduction in deaths without allowance for increase in population is 42.75 per cent.

To summarize from this date, we find that in Chicago, where hospital accommodation is small, and where they very early aided serum therapy by appointment of antitoxin administrators and board of health intubators, the statistics show a great amount of saving of life. In Chicago, as an earlier table has shown, 5400 lives have been saved; in Brooklyn, 2664; in New York City, 8204; and in Philadelphia, 1853. This makes a grand total of 18,121 lives saved in four American cities.

The question will at once be raised: Has antitoxin done all this saving of lives, or has any part been accomplished by better quarantine methods? To this argument I would reply that quarantine had been enforced before the days of antitoxin. Laboratory methods too had been used in studying this disease, and yet, as some of the earlier quoted statistics will

show, there was no material reduction in the number of deaths per hundred thousand of population. Then, as I have shown in the cases of Chicago and Philadelphia, we should have been entitled to a much larger number of deaths from diphtheria had we considered the increase in population during the antitoxin era. In Chicago, for instance, as already stated, the actual reduction in the number of deaths is 47 per cent; allowing for the increase in population it would be 52 per cent. In Philadelphia the actual reduction in deaths is 23 per cent; allowing for the increase in population it would be 35.92 per cent. In New York and Brooklyn I have not worked out this percentage, because I have not had the estimated population in year periods, but by making an approximate comparison it will be seen that the reduction there would be about midway between Philadelphia and that of Chicago.

The following table from the twelfth census shows the number of deaths per 100,000 population in the largest cities in the United States:

United States a marked reduction took place after antitoxin was introduced. In five of New England's largest cities the average number of deaths per 100,000 population has been 77 for a period from 1890 to 1900 inclusive. Since 1896 the rate has been persistently below the average. In the eight largest cities in the Middle States the average has been 101 per 100,000; since 1897 it has remained below 66 per 100,000. In five large cities from the Lake States the average has been 79; since 1896, 51 or below. The average for four southern cities has been 54 per 100,000; since 1895 the average has been less than 50. For the seven large middle western cities and San Francisco, the average, 61 per 100,000, since 1897 has remained below 47 per 100,000.

In every instance in individual cities or in groups of cities the drop has been too sudden to attribute to any factor other than to antitoxin as a curative and immunizing agent.

I am perfectly willing to admit that some reduction in death-rate has been accomplished by better quarantine methods.

Average annual rate.....		1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900
Average for cities in New England	77	94	56	88	90	121	96	99	73	31	42	66
Boston, Mass.....	97	103	62	108	114	179	130	112	87	35	55	96
Fall River, Mass.....	44	69	30	74	35	49	70	72	30	18	21	25
New Haven, Conn.....	97	122	66	98	115	71	32	99	85	38	22	17
Providence, R. I.....	52	95	47	52	51	35	68	95	56	25	26	39
Worcester, Mass.....	54	40	49	76	52	74	68	65	54	32	37	46
Average for cities in Middle States.....	101	114	124	129	129	139	106	100	95	68	62	66
Jersey City, N. J.....	123	209	177	153	126	152	102	159	119	79	51	58
New York, N. Y.....	102	118	136	131	154	106	112	97	85	48	55	62
Newark, N. J.....	99	173	105	113	138	84	121	151	79	51	53	58
Paterson, N. J.....	126	87	200	171	112	171	99	134	134	69	84	96
Philadelphia, Pa.....	107	90	127	161	104	123	116	97	113	93	79	81
Rochester, N. Y.....	64	75	89	157	104	73	42	52	46	28	33	29
Scranton, Pa.....	70	182	71	53	13	21	54	72	72	54	98	87
Syracuse, N. Y.....	51	57	35	82	125	70	22	41	58	44	21	46
Average for cities in Lake States.....	79	119	118	123	104	93	96	76	49	38	51	46
Buffalo, N. Y.....	53	43	63	65	62	74	81	79	62	26	24	19
Chicago, Ill.....	86	115	118	129	117	107	119	77	52	44	56	50
Cleveland, Ohio.....	68	104	109	120	92	80	62	73	38	41	32	46
Milwaukee, Wis.....	91	196	189	183	93	101	74	79	41	28	40	44
Toledo, Ohio.....	33	263	128	79	110	37	42	55	22	30	128	79
Average for cities in Southern States.....	54	66	80	69	52	57	46	41	52	47	43	44
Baltimore, Md.....	68	73	89	95	46	50	66	59	95	63	56	71
Memphis, Tenn.....	17	50	49	17	10	19	25	5	7	5	10	5
New Orleans, La.....	31	56	44	46	50	61	28	20	17	5	7	13
Washington, D. C.....	42	68	107	60	77	78	26	41	44	76	70	41
Average for cities in West and Central United States	61	95	87	78	69	61	87	58	36	32	33	47
Cincinnati, Ohio.....	67	165	107	105	68	74	51	55	45	23	29	26
Indianapolis, Ind.....	69	157	156	110	59	100	39	39	23	28	46	33
Kansas City, Mo.....	39	26	45	22	35	45	64	61	33	30	29	42
Minneapolis, Minn.....	45	114	63	41	28	30	62	56	15	15	23	56
Omaha, Neb.....	57	129	115	88	49	53	34	41	35	15	19	20
St. Louis, Mo.....	68	54	74	80	76	76	136	72	45	47	43	75
St. Paul, Minn.....	56	90	74	108	64	42	73	48	30	42	26	35
San Francisco, Cal.....	51	61	151	104	73	24	15	14	33	46	32	23

The preceding table from the twelfth census shows that this reduction was not local, but that in many parts of the

I am willing to even grant that quarantine methods may have saved the difference between the actual reduction in

number and that which would have occurred had the older methods of treatment and quarantine been continued. I doubt whether the most enthusiastic health officer would claim much more. In hospitals, however, we are dealing with another problem. Here we know what we can do. Here we are dealing with similar conditions before antitoxin days and during the antitoxin era.

Let us for a moment study the statistics of the Metropolitan Asylums Board Hospitals in London. If the combined statistics of all hospitals in London under the supervision of the Metropolitan Asylums Board be summed up in tabular form, they express most graphically what antitoxin has done in that great city in a period from 1888, the time of the earliest admission of diphtheria patients to the M. A. B. Hospitals, to 1903 inclusive.

1888	90	48	59.35	Total admissions... 11,598 Total deaths..... 3,517 Mortality..... 30.32%
1889	722	275	40.74	
1890	942	316	33.55	
1891	1,312	397	30.23	
1892	2,009	583	29.35	
1893	2,948	895	30.42	
1894	3,066	1,035	33.75	
1895	3,635	820	22.85	Total admissions... 56,145 Total deaths..... 8,008 Mortality..... 14.26%
1896	4,508	948	21.20	
1897	5,873	987	17.69	
1898	6,586	991	15.37	
1899	8,678	1,182	13.85	
1900	7,878	998	12.77	
1901	7,622	849	11.15	
1902	6,520	739	11.04	
1903	5,072	504	9.69	
Total	67,748	11,525		

During this time 67,748 cases passed through these hospitals with a total number of 11,525 deaths. In 1888 the death-rate was 59.35 per cent; in 1903, 9.69 per cent. Grouping these years by periods preceding the introduction of antitoxin, and following it, we find in the interval, 1888 to 1894 inclusive, a total of 11,598 cases with 3,517 deaths, a mortality percentage of 30.32. Taking the period from 1895 to 1903 inclusive, 56,145 cases were treated in these hospitals with a total of 8,008 deaths, a mortality percentage of 14.26—just a little less than half the mortality in the preantitoxin era. Taking the average death-rates in these hospitals in quinquennial periods we have the following:

AVERAGE DEATH-RATES FOR DIPHTHERIA IN METROPOLITAN ASYLUMS BOARD HOSPITALS IN QUINQUENNIAL PERIODS.

1887-91.	1892-6.	1897-1901.	1902-3.
33.6	26.5	13.7	10.4

M. A. B. REPORT, 1903.

All forms of diphtheria, 1890 to 1894, and this table includes all cases treated with antitoxin, 1895 to 1903.

	Year.	Cases.	Deaths.	Mortality per cent
Before use of antitoxin ...	1890-3	7,111	2,161	30.29
	1894	3,042	902	29.65
	1895	2,182	615	28.1
	1896	2,794	717	25.9
	1897	4,391	896	20.4
Antitoxin used in every case.....	1898	5,186	808	17.5
	1899	7,098	1,062	15.38
	1900	7,271	998	12.88
	1901	6,499	817	12.57
	1902	6,015	714	11.8
	1903	4,899	498	10.18

Coming home and taking the statistics of the Boston City Hospital and of the South Department, we have the following table, which expresses well what antitoxin has done there. These figures and the accompanying graphic chart I am permitted to publish through courtesy of Dr. John McCollum:

Number of cases of diphtheria treated at the Boston City Hospital proper and at the South Department from 1888 to 1903, inclusive; number of cases of intubation for the same time; 1888 to 1894 no antitoxin; 1895 to 1903 antitoxin:

Year.	Number of cases of diphtheria.	Died	Per cent of mortality.	Per cent of recovered.	Number of intubations.	Died.	Per cent of mortality.	Per cent of recovered.
1888	383	176	46.07	53.92	100	78	78.00	22.00
1889	529	289	54.67	45.32	128	104	81.25	18.75
1890	415	151	36.39	63.61	98	79	80.61	19.39
1891	337	105	31.16	68.84	50	42	84.00	16.00
1892	367	185	50.41	49.59	65	56	86.15	13.85
1893	419	208	49.64	50.35	100	80	80.00	20.00
1894	598	266	44.48	55.52	89	74	83.15	16.85
Total.	3,067	1,325	43.20	56.80	634	523	82.49	17.50
1895	1,455	207	14.23	85.77	118	64	54.24	45.76
1896	1,899	279	14.69	85.31	224	146	65.18	34.82
1897	1,397	181	12.96	87.04	146	87	59.59	40.41
1898	817	97	11.87	88.12	71	42	59.15	40.85
1899	1,621	162	9.99	90.01	192	68	35.42	64.58
1900	2,547	229	9.00	91.00	259	87	33.59	66.41
1901	1,576	185	11.73	88.27	184	54	29.35	70.65
1902	1,008	111	10.99	89.01	145	49	33.79	66.21
1903	1,179	138	11.70	88.30	111	37	33.33	66.67
Total.	18,479	1,850	10.01	89.99	1,478	612	41.48	58.52

Here we find a total in the preantitoxin days of 3,067 cases, 1,325 deaths, a death-rate of 43.2 per cent in all forms of diphtheria; and laryngeal cases requiring intubation, a total of 639 cases, 523 deaths, a mortality of 82.49 per cent. Compare

this with the period after antitoxin was introduced in Boston. In the antitoxin era we find the total of 4779 cases, 1650 deaths, a death-rate of 12.24 per cent, and during the same interval with 1478 intubated cases, 612 deaths, a mortality rate of 41.4 per cent. It will be seen by these tables that in all forms of diphtheria a reduction in mortality has been made from 43.2 to 12.24 per cent, and in laryngeal diphtheria requiring intubation the mortality was cut in half.

In our own city, and in our own hospital, we are not able to quote such re-

dren to come to the hospital because of its proximity to, or, as they feel, its actual contact with, the smallpox hospital. Largely because of this unfortunate situation in Philadelphia, we have a much higher percentage of severe cases than other similar institutions, and our mortality statistics are made up from bad cases rather than a mixture of all types of this disease. It is for this reason, I believe, that we get our cases late in the disease. Many mothers, and I fear in some instances physicians too, have a certain fear about sending a child to the

Diphtheria

markable results. I believe there are very good reasons why we have not accomplished here what has been done in other places. In the first place our Municipal Hospital has, unfortunately, borne the name of "pest-house" ever since diphtheria was first admitted for treatment. During a part of the antitoxin era we were so unfortunate as to be compelled to treat on the same grounds many hundreds of cases of smallpox. I am sure my distinguished predecessor, Dr. Welch, will bear me out in the statement that many mothers will not permit their chil-

Intubation cases

Municipal Hospital, unless they are positively convinced that the case is one of severe diphtheria, and that it must have hospital care. Then, too, there is another reason: Philadelphia physicians assumed an attitude of extreme conservatism toward antitoxin. It was taken up late and in no very enthusiastic way, and practitioners tended to delay giving it until they saw the case would be a serious one.

The following table from our own hospital statistics shows that even with Philadelphia's conservatism and its unfortunate

situation, as far as her hospital is concerned, a considerable reduction in death-rate has been accomplished:

Year.	Diphtheria patients treated.	Died.	Per cent death.	
1892	183	48	26.22	Measles and mixed cases included.
1893	217	62	28.57	
1894	465	154	33.12	
Total.	865	264	30.52	
1895	708	190	26.91	Measles excluded. Measles and mixed cases included.
1896	890	198	22.02	
Total.	1,575	288	24.82	
1897	1,285	300	23.16	Measles, mixed cases and moribund cases dying in 24 hours excluded.
1898	1,229	297	24.16	
1899	1,273	275	20.02	
1900	1,289	264	20.31	
1901	889	174	19.57	Measles, mixed cases and moribund cases dying in 24 hours excluded.
1902	601	137	22.79	
1903	581	97	17.73	
1904	712	77	10.81	
Total.	7,779	1,821	20.31	

These reductions in city death-rates and in hospital practice are but a small part of the reduction which can be accomplished if the family practitioner will but take up the use of antitoxin in sufficient dose to cure, without waiting for a culture return to confirm him in his suspicions.

The above quoted statistics require no explanation other than to say no material change has occurred in treating diphtheria since the introduction of antitoxin. The tendency is more toward withholding drug treatment and toward giving larger doses of antitoxin when indicated. It tends toward early diagnosis and early administration of serum.

I am sure there are those who believe the general adoption of intubation for laryngeal stenosis has, in this country, been largely responsible for the decrease of mortality. To combat this argument I submit the following table from the M. A. B. Hospitals where tracheotomy is still practiced:

M. A. B. HOSPITALS' REPORT FOR 1903.

All forms of laryngeal cases—Cases treated with antitoxin.

	Year.	Cases.	Deaths.	Mortality per cent.
Antitoxin in occasional use	1894	466	289	62.0
Antitoxin years.....	1895	461	195	42.2
	1896	498	141	28.8
	1897	473	142	30.0
	1898	624	199	31.9
	1899	669	190	28.4
Cases receiving antitoxin	1900	777	182	23.2
	1901	753	159	21.1
	1902	618	125	20.2
	1903	551	99	17.96

M. A. B. HOSPITALS' REPORT FOR 1903.

Tracheotomy Cases.

Cases treated before antitoxin days and treated with antitoxin.

	Year.	Cases.	Deaths.	Mortality per cent.
Before use of antitoxin.....	1890-3	364	241	62.2
Antitoxin in occasional use	1894	261	184	70.49
	1895	235	113	50.2
	1896	197	8	40.6
	1897	258	108	39.9
	1898	305	118	37.0
Cases receiving antitoxin	1899	377	147	39.1
	1900	377	127	33.65
	1901	367	111	30.2
	1902	257	82	31.9
	1903	176	56	31.82

Compare these statistics with a preceding table and a chart from the Boston City South Department, and you will see antitoxin has done in London tracheotomy cases just what it has done in America for intubation cases; or compare them with our own hospital statistics:

Year.	Total number of cases.	Total number of deaths.	Percentage mortality.	
1894	100	75	75.00	Antitoxin in occasional use.
1895	122	67	45.91	
1896	156	94	60.25	
Total.	378	236	62.43	
1897	182	127	69.78	Antitoxin in general use.
1898	149	104	69.99	
1899	165	97	58.78	
1900	202	111	54.95	
1901	189	66	47.47	
1902	110	54	49.09	
1903	108	52	48.14	
1904	125	50	40.00	
Total.	1,180	661	56.01	

They would tend to prove that intubation has not done in this country all that some claim for it.

All the preceding tables seem to show that antitoxin has reduced the mortality very greatly in all hospitals.

Let us now take up the question of dosage.

From a paper recently read by Dr. Louis Fisher, of New York City (some of you will remember that Dr. Fisher was the first man in the United States to publish a clinical report of the use of antitoxin), I find that the dose he teaches the house officers of the Willard Parker Hospital is very much like that dose in use at the present time in our Municipal Hospital. He feels as we feel, that the proper dose of antitoxin must be somewhat empirical, that it must not be less than will

"limit the pseudomembrane, subdue the fever, and check the progress of the disease."

In an abstract from this paper read before the New York Academy of Medicine, November 10, 1904, published in *Archives of Pediatrics* for December, 1904, I cull the following mortality statistics from the Willard Parker Hospital:

RÉSUMÉ OF CASES REPORTED FROM THE WILLARD PARKER HOSPITAL DURING JULY, AUGUST, AND SEPTEMBER, 1903.

	Number.	Died.	Mortality per cent.	Recovery.
Tonsillar and pharyngeal.	292	34	11.64	88.86
Tube cases.....	69	42	60.87	39.13

RÉSUMÉ OF CASES REPORTED FROM THE WILLARD PARKER HOSPITAL DURING JULY, AUGUST, SEPTEMBER, AND OCTOBER, 1904.

	Number.	Died.	Mortality per cent.	Recovery.
Tonsillar and pharyngeal.	258	25	9.84	90.16
Tube cases.....	115	41	35.65	64.35

"The average dose of antitoxin administered during 1903 was for July 1500, for August 1700, and for September 2500 units; the average dose of antitoxin administered during 1904 was for July 2500, for August 5000, and for September between 5000 and 10,000 units. As a result, it has shown about 21 per cent mortality where the dose was small, against a mortality of 14 per cent where the larger doses were used."

"For a mild case, from 500 to 5000 units was used. If there was a large exudate on the tonsils and pharynx, from 5000 to 10,000 should be given on the first day, and repeated within twelve hours if no improvement is shown. In cases of laryngeal diphtheria, with stenosis, the initial dose should be 10,000 units. He had never seen any case that suffered any ill effects from large doses."

In the discussion which followed the reading of Dr. Fisher's paper Dr. Park, whom some have learned to look upon as one advocating small doses of antitoxin, had this to say of doses: "In mild cases either early or late, involving tonsils or pharynx, he uses 2000 units; in severe early cases 4000 units; in ordinary laryn-

geal cases 5000; in malignant severe cases, tonsillar, pharyngeal, or nasal, 10,000 units, and repeat this dose at the end of ten or twelve hours until the patient is distinctly better."

Dr. McCollom, of the South Department, Boston City Hospital, has long advocated large doses in severe cases.

The following doses are in use at the present time in my wards at the Municipal Hospital:

Purely tonsillar exudate (single), 2500 units; purely tonsillar exudate (double), 5000 units. Tonsillar exudate with involvement of pillars and uvula or pharynx, 7500 to 10,000 units; nasal and any other part involved, 7500 to 10,000 units; laryngeal, 7500 to 10,000 units.

Repeat the dose in each case in from twelve to twenty-four hours, depending upon the severity of the disease and the signs of improvement, as shown by general condition and disappearance of exudate. If the exudate is rapidly separating do not give a second dose. Where a great amount of exudate remains give a daily dose of from 5000 to 7500 units until the greater portion of it has disappeared. With patients admitted after the seventh day of disease give 2500 units only. Do not repeat. When patients have remained in the ward six weeks give immunizing dose of 2500 units.

We give very large doses in nasopharyngeal diphtheria because we know with pseudomembrane present in this locality toxicity is greater than with it in any other. There is a good anatomic and histologic reason for this increased toxicity. The basement layer of the mucous membrane lining the nasopharynx covering the pharyngeal tonsil and back portion of the uvula is a complete network of lymph channels, ready to open and carry away any absorbable material. In the faucial tonsils and low on the pharynx the lymph channels are less numerous and the fibrous tissue is more abundant, hence less absorption. Then, too, in the nasopharynx you quickly get plugging with damming back into this cavity toxins that from the tonsils might be expectorated. Exudate serum and secretion are firmly held in the nasopharynx. We give large doses in laryngeal diphtheria because we not only want to neutralize the toxins, but because we must limit the extension of pseudomem-

brane. We do not give large doses after the seventh day of the disease, because the damage done is irreparable.

Having proven the value of antitoxin, and having shown the reduction in deaths from diphtheria in large cities and in large hospitals, and having shown the tendency to give larger doses, with an argument in favor of doses determined from amount of exudate and location of exudate, we now take up the most vital part, viz., when to give antitoxin. Before deciding when to give it let us take up the statistics of the Brook Hospital, London, the collected statistics from Chicago, and our own statistics for 1904.

STATISTICS OF THE BROOK HOSPITAL,
LONDON.

JOHN MACCOMBIE, *Medical Superintendent.*

Antitoxin Treatment.—Of 716 completed cases, 610 were treated with antitoxin. The following table shows the result of the antitoxin treatment, with especial reference to the day of disease on which the treatment began:

Ages.	Day of disease on which treatment began.										Total.		Percentage mortality.
	1st.		2d.		3d.		4th.		5th.				
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Under 1.....	0	0	5	0	3	0	2	2	2	1	9	3	33.3
1 to 2.....	4	0	2	0	10	4	9	2	12	4	40	10	25.0
2 to 3.....	7	0	11	0	16	5	14	4	21	5	69	14	20.2
3 to 4.....	2	0	20	2	19	6	7	0	22	2	70	10	14.2
4 to 5.....	0	0	16	2	21	3	14	2	27	6	78	13	16.6
5 to 10.....	5	0	65	2	66	12	45	6	64	9	245	29	11.8
10 to 15.....	2	0	12	0	23	0	18	2	13	2	68	4	5.8
15 to 20.....	0	0	7	0	7	0	1	0	2	0	17	0	0.0
20 and upwards.....	0	0	3	0	5	0	2	0	4	0	14	0	0.0
Total.....	20	0	141	6	170	80	112	18	167	29	610	83	13.6
Percentage mortality	0.0		4.2		17.6		16.07		17.3		13.6		

"For the purpose of comparison I give the results of the antitoxin treatment here for the seven years, 1897 to 1903 inclusive (the figures in brackets are to total number of cases):

	1897	1898	1899	1900	1901	1902	1903	1908
Of cases [187] treated on 1st day of disease the mortality per cent was.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Of cases [1186] treated on 2d day, mortality per cent was	5.4	5.0	3.8	3.6	4.1	4.6	4.2	
Of cases [1238] treated on 3d day, mortality per cent was	11.5	14.3	12.2	6.7	11.9	10.5	17.6	
Of cases [968] treated on 4th day, mortality per cent was	19.0	18.1	20.0	14.9	12.4	19.8	16.07	
Of cases [1290] treated on 5th day, and after.....	21.0	22.5	20.4	21.2	16.6	19.4	17.3	

"During the past seven years the total

number of cases of diphtheria treated with antitoxin in this hospital has been 4812. Not a single death has occurred among the cases that came under treatment on the first day of the disease, and among those that came under treatment on the second day the mortality has not exceeded 5.4 per cent, while among those that came under treatment on the third day and later the mortality is much higher. These facts show how eminently curable a disease diphtheria is if treated with antitoxin early enough, and how large a number of lives would be saved if all the cases would be put under antitoxin treatment on the first or second day of disease."

"In Chicago, between October 5, 1895—date of first case treated—and December 31, 1903, the antitoxin administrators of the department treated 7435 cases of bacterially verified diphtheria, of which number 479 died—a mortality-rate of 6.44 per cent. The average mortality without antitoxin still remains about 35 per cent.

"That the value of antitoxin depends upon its early administration is shown by the following:

"Of the total 7435 cases, 586 were treated on the first day of the disease, with 2 deaths—mortality-rate, 0.34 per cent. Of 1913 treated on the second day, 28 died—mortality-rate 1.46 per cent. Of 2624 treated on the third day, 85 died—mortality-rate 3.24 per cent. Of 1374 treated on the fourth day, 148 died—mortality-rate 10.8 per cent. Of 936 first treated later than the fourth day, 216 died—mortality-rate 23.1 per cent.

"There were included in the total 7435

cases, 608 intubated laryngeal cases, of whom 508 recovered; mortality-rate of intubated cases 16.54 per cent. The former mortality of this class of cases—intubated are tracheotomized—was about 85 per cent."

MUNICIPAL HOSPITAL REPORT FOR 1904.

Day of disease and results.

Day of disease.	Admitted.	Died.	Per cent.	
1st day	43	0	00	Measles, mixed cases and moribund cases dying in 24 hours omitted.
2d "	220	9	4.09	
3d "	153	21	13.72	
4th "	114	20	17.54	
5th "	61	9	14.75	
6th " and over...	121	18	14.87	
Total	712	77	10.81	

In a recent letter from Dr. John H. McCollom, South Department Boston City Hospital, he makes the following statement:

"Experience has taught me that the golden time for administering antitoxin is during the first twenty-four hours of an attack of diphtheria. I have yet to see a patient die from diphtheria who had antitoxin in sufficiently large doses within twenty-four hours of the commencement of the attack.

"Since the South Department was opened we have had 180 cases of diphtheria among the doctors and nurses, and not a single death, because each patient received a large dose of antitoxin at the outset. I go so far as to say that when a throat has a suspicious appearance it is better to give antitoxin at once and not wait for the result of the culture. Nobody believes more thoroughly than I do in bacteriologic examinations of the throat. Nobody has worked any harder on that line than I have. Nobody has any wider experience than I have. Yet I cannot help feeling that in a given case of diphtheria much valuable time is lost by waiting for the result of the culture.

"I think it is true that patients are coming to the South Department earlier than they did a few years ago. It frequently happens that one member of the family will have an attack of diphtheria and will be treated at home for four or five days, sometimes with antitoxin and sometimes without, and then sent to the hospital as a last resort. The patient is seriously ill and frequently succumbs to the disease.

As soon as the other members of the family show any symptoms of sore throat they are at once sent to the hospital, have antitoxin and recover."

The time to give it is when you have clinical evidence of diphtheria. Do not await a culture report; do not wait to see if you will have severe diphtheria. Give it at once.

We very frequently have patients sent to us three, four, or five days in the disease treated by a physician for two or three days and no antitoxin given. I believe that you would find it exceedingly difficult to defend yourself in a court of law were proceedings brought against you for neglecting to give such a life-saving agent until the time had passed when it would positively cure your patient.

These statistics in day of the disease require no explanation and no comment. If antitoxin is given early and in an appropriate dose the loss of life will be practically *nil*. If delayed several days the mortality will be very great.

As an immunizing agent, antitoxin is too little used by the profession. It is very common for us to receive at the hospital a patient very ill with diphtheria, and in from two to three days receive a second or third case from the same home. In fact, in a recent experience a child died at home the fifth day of disease without antitoxin, and in three days we received the mother and six children. Not one of these cases should have contracted the disease. All of that suffering and distress would have been saved had the simple, harmless precaution of immunizing those exposed been practiced.

We very often have mothers accompany sick babies to our acute wards and live there. We many times have had sick mothers bring with them nursing babes not suffering with the disease. No precaution is taken and no treatment given beyond immunizing them well. We do not expect them to get the disease. We practically assure them that they cannot get diphtheria if immunized.

Some of you may feel that you will impose upon your clientele too great an expense by this liberal use of serum. I grant you this may be true in certain classes. The Bureau of Health stands ready to supply your patients with antitoxin when they cannot afford to buy it in the market, and should you not care to

give it, the Bureau of Health stands ready to send a medical inspector to the home to give it in curative or in immunizing doses as you may direct.

There is no excuse at the present time for neglecting to immunize those exposed to diphtheria. I question if you could defend yourself comfortably in a legal action if you were called upon to prove that you had used "reasonable care" when you had neglected to immunize a family, if those exposed subsequently developed the disease, and the family then proceeded against you.

There seems to be a rational method of dosage even in immunizing. I would recommend for the household 500 units for those not directly exposed, 1000 units for those directly exposed, and 1500 units if any sign of illness were present.

I have not yet seen a case of diphtheria develop where a patient had been immunized at the time of exposure or soon after.

In conclusion, I would remind you that in New York City (Manhattan and the Bronx), Brooklyn, Chicago, and Philadelphia, 18,121 lives have been saved through the introduction of antitoxin as a curative and prophylactic agent in the treatment of diphtheria.

The death-rate in diphtheria hospitals has been greatly reduced and in many instances cut in half by the introduction of serum therapy. We would plead for a dose of antitoxin in proportion to the amount of exudate and location of the exudate. We would urge a large dose of antitoxin in nasal, nasopharyngeal, and laryngeal diphtheria. We would plead for the general use of antitoxin earlier in the disease. We would plead for more general use of antitoxin as a prophylactic measure in a dose proportionate to the amount of exposure and time of exposure.

THE TREATMENT OF SCIATIC NEURITIS.¹

BY CURRAN POPE, M.D., LOUISVILLE, KY.,
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The sciatic plexus is made up from the lumbosacral cord by the anterior division of the three sacral nerves and part of the

fourth. The sciatic nerve is in reality a continuation of the sacral plexus, and leaves the pelvis by passing through the great sacrosciatic foramen, below the pyramiformis, and passing through the buttock between the tuberosity of the ischium and the great trochanter, it terminates at the popliteal space by breaking up into the external and internal popliteal branches, and finally ending in the tibial and cutaneous branches. It supplies the muscles of the back of the thigh, and those of the leg and foot and nearly the whole integument of the leg. It is made up of motor, sensory, reflex, trophic, and muscular sense fibers. It is the largest nerve in the body, and is most often diseased. Microscopically it does not differ from that of the ordinary peripheral nerve, though it is more liberally supplied with nervi nervorum than the average nerve, and its sheath is heavy. It is exposed to internal pressure within the pelvis and is superficial, and so is exposed to external influences at the sciatic notch behind the head of the femur, and where the external popliteal nerve runs around the fibula. With this short résumé of its anatomical and physiological function we will consider the origin and cause of inflammation affecting this nerve. Sciatic neuritis is a common affection. Sciatica or neuralgia is an uncommon affection and of recent years; although I have seen a large number of cases, I have so far noted but one case of true sciatica.

It occurs more frequently in the adult, and is, in fact, rare in children, males being much more frequently affected than females. Season has a close relation to this disease, most cases occurring in autumn and winter. The presence of toxins and retrograde products of acute rheumatism strongly predisposes toward the disease. Morphine has produced several cases in my practice, and I am of the opinion that the injudicious use of morphine when this cause is present tends to perpetuate rather than to cure the condition. La grippe has been in my cases the most frequent single cause of sciatic neuritis, and in these cases it has been exceptionally severe, probably owing to the previous weakening effect of the toxins of Pfeiffer's bacillus. Local causes are more common in women, producing this condition by pressure or inflammation

¹Read before the Southern Kentucky Medical Association.

extending from within the pelvis to the nerve itself. Local exposure to wet and cold combined with pressure, falls, or injuries upon the exposed portion of the nerve, occur in a certain number of cases.

The pathologic anatomy is that of a peri-Interstitial neuritis affecting the adventitia. The nerve is usually edematous and swollen, and as a result of this condition pressure and irritation develop, affecting the nerve fibers secondarily. Inflammation may extend into the nerve substance and fibers, in which case we have true degenerative conditions. These manifestations are usually worse and more noticeable in that part of the nerve that is close to the sciatic notch.

Symptoms.—In the acute stages and at the inception of the disease pain and tenderness are usually limited to the nerve, and most distinctly felt at the sciatic notch and below the knee. The pain varies in degree, but is apt to be intense, lancinating, boring, and burning in character, and is much worse at night. Exposure of the limbs to cold or manipulation may cause intense paroxysms of pain, though these sometimes occur spontaneously. Pressure, especially at the sciatic notch, is liable to bring on an attack of pain, and this is also true of the other exposed portion of the nerve over the great trochanter, the thigh, external side of the knee-joint at the fibula, in the calf, and on the dorsum of the foot. Movement notably increases the pain, and as a result of this the knee is held in a semiflexed condition. The gait is, in this stage, as well as in the chronic, similar to the posture assumed in bed, with the weight on the well leg and the affected member held semiflexed. Various paresthesiæ are apt to develop, such as heat, fulness, tingling, cold sensations, etc.

In the chronic stage we may expect the same conditions as in the acute, but with less suffering to endure. Examined at this stage we find the subjective and objective symptoms as described; in addition the vasomotor and frequently the trophic functions are involved, the limb being cold, the temperature to the touch reduced, the skin of a livid dusky color, becoming white on pressure, and slowly resuming its former tint. The limb is apt to present a dry and scaly appearance. Motor changes frequently take place, the most noticeable being the loss of power,

partly due to pain, partly due to weakness; muscular spasm and occasionally trembling are present. The reflexes, as a rule, in the chronic stage are diminished, the knee-jerks, sometimes the Achilles tendon reflex, remarkably so. Babinski's sign is usually normal. The reaction to electricity is that of a partial reaction of degeneration, and is often about equal to the wasting that takes place.

The diagnosis is fairly easy, for persistent pain in the nerve, tenderness over Valleix's points, and the fact that it is unilateral enable one with the electrical test to settle the question. Double sciatica suggests organic disease or diabetes. Thorough examination should be made of the pelvic organs in both male and female for causal conditions. The history of the case frequently points to causal indications. Gowers says that a pain running up the back of the thigh, coming by pressure over the back of the knee when the leg is extended at a little more than a right angle, is diagnostic. Dana calls attention to the fact that if the patient lies on the back with the leg extended, and then the whole limb is brought up until at an acute angle with the trunk, sharp pain in the sciatic notch is diagnostic.

The prognosis is good in true neuritis as well as in the neuralgic form. A case usually lasts three to four months. I have cured quite a number of cases in from four to six weeks. If there is neglect, the nerve degenerates and atrophy occurs; it may require four to nine months to secure a perfect recovery.

The first essential in the management and treatment of these cases is to secure a thorough knowledge of the individual patient in hand, and to this end it is my invariable rule after obtaining the history of the case to make a most exhaustive physical examination, not alone of the nerve, but of the entire body. This is supplemented by a quantitative examination of the stomach juice, blood, and urine. These examinations should be quantitative as well as qualitative, and should embrace an actual estimation of uric acid and the purin bodies. Having distinctly settled the diagnosis and ascertained the causal relations, it is my opinion that the patient should be removed from home and home surroundings, that his case may be completely under control

and better treated. In the acute stage the aim should be to at once bring the patient under the general influence of constitutional elimination, and such local measures as will relieve pain and produce comfort and sleep. I start the treatment with the administration of a good mercurial purge, using either blue mass or gray powder, following this by an active saline. This should be followed by the internal administration of medicines that belong to the salicylic and alkaline group. Under ordinary management this should be all the drugs needed. I wish to dwell here especially upon the pernicious and demoralizing use of whiskey and morphine in these cases, and unless administered *in extremis* they should never be given. Medicines I have found to have very little practical value in the treatment of these cases. Care should be used in the handling of the leg, and in the acute stage overstimulating treatment must be avoided. It is at this stage that the electrical and hydrotherapeutical treatment is of especial value, and as the treatment in acute and chronic stages varies only in degree rather than method, I shall therefore at once take up the consideration of the treatment of a chronic case of sciatic neuritis.

The diet should be plain, with no meat, and as far as possible purin-free; in the acute stage it should be liquid absolutely. Large volumes of water must be drunk, even if it is to be taken like medicine. Rest in the early stages is useful, and the treatment during this time is best administered in bed.

In the chronic stage the patient should rest between treatments given. Of all the methods of reaching sciatica, hydrotherapy is the most satisfactory. In my hands the dry pack combined with the fomentation at from 140° to 160° F. over the sciatic notch, followed by continuous dry heat, has given the best results. As soon as the pain mitigates the fomentation should be followed by a rapid cold sponge or compress to the nerve. In the chronic stage I prefer the application of superheated hot air at from 250° to 350° to the whole body, or the use of the electric light bath until profuse perspiration occurs, with the local use of the fomentation to the sciatic nerve and a subsequent tonic hydriatic procedure. Patients pro-

gress rapidly, as a rule, under these measures, and as soon as they are able they should be given the alternate or Scotch douche, this being likewise preceded by the hot air or electric light bath. It requires judgment and experience to guard these applications, and they should not be made unless there is every facility for applying them.

Massage is of no value during the acute and early stages, but in the chronic stage it may be gently used, or what is better, mechanical vibration. As the case progresses this can be gradually increased until it is both strong and vigorous. Its application in many cases has a very soothing effect, relieving pain and stimulating the circulation of the leg. Electricity is of undoubted value in these cases in the early stage: the galvanic current should be applied to the nerve, both stabile and labile, which should not exceed three to five milliamperes, and the duration of the application from four to eight minutes. With subsidence of the inflammation, the high tension faradic from a very fine wire (32 or 36) in combination with the galvanic may be applied both for its sedative, stimulating, and reconstructive powers. Where the nerve substance has become involved gentle muscular stimulation with the uninterrupted galvanic current keeps these structures in good nutritional condition and prevents atrophy. It may be combined with other electric applications. In the later stages heavy static sparks in combination with the wave current applied to the spine and down the nerve will be found very efficacious in these cases. It is my habit to give three or four treatments per diem, combining the good influences of all these treatments when arranging such a schedule as will embrace such an application of hydrotherapy, one of massage and vibration, and another of electricity. I rarely if ever treat the sciatic neuritis by means of drugs, but prescribe only such medicines as are necessary to correct the functional condition of the stomach and intestinal tract, or use eliminants to remove diathetic conditions. In the final stages of the disease, however, tonics will be found of some value, notably the hypophosphites or glycerophosphates and iron. It is rarely that I find a case so stubborn as not to yield promptly and satisfactorily to these methods.

MALARIAL HEMOGLOBINURIA, OR HEMORRHAGIC MALARIAL FEVER.

By W. E. SPARKMAN, M.D.,
Georgetown, South Carolina.

Malarial hemoglobinuria is a pernicious form of fever. It is called in some parts of Virginia and North Carolina "yellow chills," and in Africa "blackwater fever."

Some of the authorities speak in their works of a "malarial hematuria," but the subject under discussion is a separate and distinct condition, and should be spoken of as "malarial hemoglobinuria." Between a hematuria and a hemoglobinuria there is a wide difference, for under the microscope in the former condition we find the red blood cells intact, while in the latter we find only hemoglobin.

As to the pathological changes in the liver, spleen, and kidneys, I can only surmise, as autopsies have never been afforded me (in this section), and we are therefore handicapped.

Malarial hemoglobinuria is undoubtedly one of the pernicious forms of malarial fever; but I contend that it is not a *hematuria*, nor does it represent that form of malarial intoxication reported by Bartholow or Pepper, which they term "malarial hematuria." I am free to admit that complications may arise where we find a hematuria occurring in the case of a hemoglobinuria, but we only find such when quinine has been injudiciously used, and never primarily. There are fulminant cases in which true hemorrhages may take place in the course of this disease, as in an apoplexy, and it is perfectly possible to convert a true hemoglobinuria into a hematuria by the untimely use of quinine, just as we may convert a simple malarial fever into one of hematuria by the same means. Hemoglobinuria appears to be the outcome of some agent in the blood which tends to destroy the red blood cells, and as a consequence the hemoglobin is excreted by the kidneys.

Further, this hemorrhagic type or hemoglobinuria seems to be dependent upon a *profound* malarial intoxication, or from frequently recurring or neglected cases of malarial infection, and does not occur in the primary form.

In my experience I have never seen it in any but the intermittent forms of malaria, but I have seen it followed by severe

remittent fevers. The probable parasite to be found is the "estivo autumnal," and while the fall months seem to furnish many cases, yet it may occur at any season of the year; I have seen it in the midst of winter. The symptoms are often nondescript, inasmuch as they vary greatly in each individual case.

No one who has ever attended a severe hemorrhagic fever can fail to be impressed with the deep sense of responsibility which attaches to it, and the sense of relief which comes with the first symptoms of improvement. We find, as an example, a patient with a history of chills, fever, and sweating, occurring every day, every other day, or once in two weeks. Suddenly there is a violent chill, more pronounced than the others, and this is followed by a more or less copious discharge of bloody water. There is much nervous jactitation, bilious vomiting, headache, pain in the back, and sometimes constipation (sometimes diarrhea); great thirst, rapid pulse, and a temperature varying from subnormal to 105°. There is rapid discoloration of the skin, simulating jaundice. The spleen and liver are both enlarged and tender on pressure; and soreness is more or less pronounced all over the abdomen. The discharges of bloody water are coincident with the chills, and the jaundice deepens as the case progresses.

Sometimes there is delirium, but oftener insomnia, and great prostration may be present from the first, or may come on gradually.

The urine is usually scanty and passed with difficulty, and may become suppressed partially or completely.

This anuria is possibly due to coagulation in the uriniferous tubes, and unless relieved quickly is followed by uremic symptoms, hiccough, etc. If a total suppression lasts thirty hours the case will terminate fatally, as a rule. The tongue is dry and covered by a dark brown or whitish coating. The pulse may be rapid and small, according to the environment of the patient.

The treatment seems to vary greatly in different localities, and according to the symptoms present. It is a primary requisite to know with what one is dealing before applying remedies, and hence I am forced to conclude that these condi-

tions are often mistaken for true hemorrhages and true jaundice, when in fact they are not, and therefore receive just the reverse of rational treatment.

For convenience I will divide the cases into four classes, and then discuss the treatment suitable to each:

1. *Mild cases*, in which the serious symptoms are absent—and we have only the colored water with some icterus, and a little amount of fever.

2. Those cases in which there is an aggravation of the symptoms, some vomiting, but nothing alarming.

3. Those cases in which we start with grave conditions, such as high fever, much vomiting, headache, backache, deep jaundice, and partial suppression of urine.

4. Those cases where there is suppression, great vomiting, high fever, repeated chills, weak heart, and all of the signs of impending dissolution.

The treatment under these conditions must be eliminative as well as supportive—bearing in mind always that complications may be forced upon us without notice, which will render a mild case grave before we realize it.

Among the grave conditions none are more serious than the suppression of urine; and often the physician is taxed to the utmost without restoring this function, and death results.

Little is necessary in the first two series of cases except some mild refrigerant diuretic, such as lemonade with cream of tartar, and a careful avoidance of quinine and calomel.

In the third and fourth series, drachm doses of the hyposulphite of sodium in cinnamon water should be given every three hours until the jaundice begins to clear, and urine becomes normal. For nausea and vomiting I give brandy on crushed ice, or apply mustard plasters to the epigastrium, and give:

Bismuth subnitrate, 3ij;
Cerium oxalate, 3ij;
Carbolic acid, 3ss;
Mucilage of acacia, q. s. ad 3iv.

M. S.: Two teaspoonfuls in ice water every three hours.

Ergot should not be given under any circumstances, because it favors clot and suppression of urine.

If fever be high and insomnia and great restlessness exist, the following is an admirable prescription:

Potassium bromide, 3ij;
Spirit of nitrous ether, f3ij;
Chloral hydrate, 3ij;
Acetanilid, gr. xl;
Simple elixir, q. s. ad f3iv.

M. S.: Tablespoonful every two or three hours as may be necessary until quiet is obtained.

For the partial or complete suppression of urine, acetate of potassium with infusion of digitalis in "watermelon seed tea" seems to be the best diuretic. This is very much enhanced by the high rectal injection of a hot normal salt solution, the patient being encouraged to retain it as long as possible.

As long as the urine is bloody I use:

Tincture of digitalis, f3iv;
Tincture of ferric chloride, f3iv;
Ammonium muriate, 3j;
Simple elixir, q. s. ad f3ij.

M. S.: Teaspoonful in ice water every three hours.

This is not easily borne in some cases, but if rejected it should be repeated at once.

Good whiskey or brandy I give with strychnine nitrate 1/30 to 1/40 grain every three or four hours to guard against heart failure; and egg-nog, milk slip, or any nourishment that the stomach will stand is given freely. Lemonade is a good diuretic and helps to allay thirst. Let me report my experience with *raw, ripe tomatoes*. I find that they not only agree with the irritated stomach, but will stop nausea and give a sense of relief which I can get from nothing else. I have never seen any harm from their use, and use them freely in all fevers.

After the urine has cleared up for thirty hours, I try quinine cautiously, but on the first symptom of a recurring hemorrhage I stop it at once. One to two grains may be given every three hours, till ringing in the ears is produced.

My convalescents are put upon:

Quinine sulphate, gr. ij;
Ferric sulphate, gr. ij;
Strychnine sulphate, gr. 1/40;
Extract of gentian, gr. ¼.

This pill is given t. i. d.

It must be borne in mind that it often happens that serious conditions arise just about the time a patient seems to be getting along well, and hence the necessity of a *guarded prognosis*, as well as the utmost care and circumspection, with convalescents. Relapses, while not common, are as a rule harder to handle than the primary cases.

THE MODERN TREATMENT OF YELLOW FEVER.

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ico-Chirurgical Academy of Madrid.

Up to the present time different ways of treating yellow fever have been highly praised, their authors claiming for each of them very flattering results supported by good-appearing statistics. Some of them employed a copious venesection at the onset of the disease; others a profuse diaphoresis induced by sudorifics, or by raising the temperature of the surrounding atmosphere, or by both means combined; while some others, on the contrary, recommended placing the patient in what they called a "polar chamber," which was a sort of refrigerator. Sternberg advocated an alkaline internal treatment combined with a strong microbicide agent (bichloride of mercury), with the idea of neutralizing the acidity of the urine and of the matter to be vomited, and to arrest at the same time the development of microorganisms in the alimentary canal; and yet others the inoculation of the attenuated virus of the wrongly supposed germ of the disease. But there is not the least doubt that so far all these methods of treating yellow fever have proved unavailing, and that the best way found to manage a case of this terrible disease is simply by careful nursing and strict attention to the individual symptoms present.

As this justly dreaded malady is self-limited, its course cannot be arrested by any drug or combination of drugs whatever. No "heroic" or even too active medication, therefore, should be employed. Every case ought to be regarded as serious, no matter how slight the symptoms may appear, and on account of the great structural alterations which are going on in the blood and visceral organs the closest medical attention and the most judicious nursing are required.

In those parts of the western hemisphere where yellow fever is known as a common disease owing to its constant appearance for a great number of years, the standard initiatory treatment is always a cathartic of some kind. The majority of the older practitioners in those localities favor a full dose of oleum ricini to a mer-

curial or a saline purgative, and some of them add the juice of a ripe lemon mixed up with the oil, but the younger set prefer to give thirty grammes of sulphate of sodium.

I observed during the epidemic of yellow fever in Key West, Florida, in 1887, that this was also the rule among the Cuban physicians then practicing in that tropical city of the United States; but that the American and English practitioners employed large doses of calomel. I saw also the same thing practiced by the great majority of the surgeons of the United States army and United States volunteers during the American occupation of Cuba.

A certain number of uninitiated confrères practicing at that time in Cuba among the American soldiers also prescribed quinine in large doses, in the belief that as yellow fever resembles some forms of paludal intoxication, "it did good to the patient." Nothing in my opinion is so delusive. Quinine not only does not exert any specific action whatever in yellow fever, but it does, on the contrary, great harm, because it weakens the heart, whose work is then of such supreme importance, and retards diuresis by increasing the congestion of the kidneys.

Some of those practitioners defended the administration of a large dose of quinine at the beginning of the attack on the ground of its use as a test in the differential diagnosis of the disease. But this procedure I consider unjustifiable, because there is no need of running such a risk. In my article on the diagnosis of yellow fever, published in the *Medical News* of Philadelphia, March 26, 1887, I say:

"It suffices to see but a few yellow fever cases to become convinced that this formidable malady constantly presents two distinct stages. The first is a short one, lasting no more than three days, generally called 'the stage of reaction;' the second is that of defervescence and decomposition of the blood, known as 'the stage of calm,' and lasting from a few hours to two weeks, according to the form and character of the prevailing epidemic. When the case terminates happily during the first stage, the second is marked only by the beginning of its evolution during convalescence. The more rapidly the two stages succeed one another the more dangerous the case, and *vice versa*.

"The recognition of this dreadful disease, speaking in general terms, is easy. Whenever, during summer weather, we are called to see a patient suddenly taken sick with one paroxysm of cold or chilliness (which occurs eight times out of ten when the sun has disappeared from the horizon), followed by a rapidly rising fever (102° , 103° , 104° F.), and accompanied by headache, pain in the back and lower limbs; the face flushed, with an anxious expression, and the eyes injected and watery; hurried breathing; the stomach very irritable, with great epigastric discomfort and tenderness on pressure, nausea, and anorexia; the tongue moist, slightly coated, sometimes red at the tip and edges, yet otherwise natural; bowels constipated, and in some cases gurgling in the right iliac fossa; lessened quantity of urine, darker than naturally in color, and albuminous; general muscular debility; pulse rapid, strong, tense, sometimes dicrotic, with from 90 to 120 pulsations to the minute; skin hot, dry, and harsh; and if not all these characteristic symptoms, at least the great majority of them, without a previous history of yellow fever, then we may unhesitatingly pronounce the disease yellow fever in its incipency."

The dominant physiological disturbance in yellow fever is a sort of paralysis of the vasomotor nervous centers, which becomes apparent in the anguishing discomfort at the seat of the solar plexus, and in the flushed and anxious expression of the face, the hyperemic and watery eyes with the pupils dilated, very much resembling those of a drunken man.

In a case calling for the prompt abatement of the temperature and for a nervous sedative, in the new antipyretics we have nowadays at our command several remedial agents, almost any one of which is far better for that purpose than quinine. Aconite, digitalis, and veratrine, in small doses, are also superior to quinine for the same object.

Jaborandi acts in a doubly beneficial way, for it not only promotes perspiration, and thereby elimination of the yellow fever poison through the skin, but also relieves the congestion of the kidneys. I prefer to use the infusion of the leaves, administered hot, to the hypodermic injection of pilocarpine, though when the leaves obtainable are too old I also make use of the alkaloid subcutaneously.

The great desideratum in the treatment of yellow fever is *not to disturb the stomach, and to relieve the congestion of the kidneys.*

If we could keep the stomach in a state of quiet and the kidneys in a state of functional activity for three or four days, "yellow jack" would cease to be such a dreaded disease. We must by all means, therefore, pay the closest attention to these two organs.

Of baths of all kinds, the only appropriate one is the hot mustard foot-bath at the beginning of the attack. It relieves the cerebral congestion and headache then existing, and often induces free perspiration followed by sleep.

A sudden cooling of the surface of the body is dangerous, because it abruptly increases the existing congestion of the visceral organs, and for that reason I consider inappropriate all applications of ice or cold water to the head, face, hands, or back, during the febrile stage, and very particularly an unexpected chill of the whole body caused by a draft of air.

Sinapisms applied to relieve visceral congestion is good practice, and especially so when the sinapism is put over the epigastrium to ease the distress, sense of weight or pain in the stomach, which is one of the two organs, as I said before, most in need of care during an attack of yellow fever.

Diaphoresis and diuresis may be promoted also by large draughts of lemonade made with Seltzer water, hot decoction of orange leaves sweetened to taste, or by simple Vichy or soda water. But there is yet another means of at once relieving the renal congestion, which the Cuban practitioners call "*dar de beber á los riñones*," or, in English, "watering the kidneys." This is done by a rectal injection of fresh water, and it is certainly wonderful to notice how readily the kidneys are thus refreshed and their congestion immediately improved.

Opium, in whatever form, should not be given under any circumstances. Its effect on the heart and kidneys is extremely dangerous in this disease. The temptation to allay the gastric distress by its employment should be strongly resisted.

Stimulants should not be given at all, with the only exception, perhaps, in some cases in which the patient has been in the habit of using them, of iced champagne.

Some physicians inexperienced in the treatment of yellow fever are of the opinion that in the second stage of the disease stimulants can be advantageously administered to reanimate the enfeebled heart, but the danger of thus disturbing the stomach is so great that I do not approve of it. When the pulsations of the heart have fallen to 50 or 60 per minute, there are several cardiac stimulants at our disposal far superior to alcohol in these cases, and my favored one for this purpose is digitalis.

Proper alimentation is of prime importance. During the onset of the attack no food is desired, and food by no means should be given. Iced milk, previously well boiled, and in obstinate cases of vomiting mixed with a little lime water, is the best aliment to give at first; the quantity and frequency in taking it are to be left to the natural desire of the patient. Beef tea or bouillon can be substituted for it later on. In a word, liquid nourishment ought to be the only kind taken even in case the patient should crave for it in the second stage of the disease. Until convalescence is fully and completely established no solid food of any sort should be given to the patient.

Absolute rest in bed in a ventilated room, without drafts of air, and preserved at a convenient and even temperature, is very important to the success of the treatment of a yellow fever patient. But more essential than that is a calm and hopeful state of the mind and spirits of the sick. Everything that antagonizes this moral persuasion should be carefully guarded against.

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A COMPARISON OF HEART REMEDIES.

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A careful comparison of those remedies which are used for any given disease teaches us the conditions in which each of them will act specifically, thus enabling us to prescribe each agent with more exactness.

In the administration of heart medicines it is common to give digitalis to all cases, indiscriminately. This is a serious mistake, and in many cases is productive of even fatal results. This agent is as

powerful for harm as it is for good, unless prescribed with exactness and precision. It is a valuable remedy when the pulse is rapid, weak, or easily compressible, when cough or cyanosis is present, and when there is dyspnea or edema accompanying valvular incompetency of the aortic or mitral valves, or where there is stenosis of the mitral valves. On the other hand, when the pulse is full, hard, and slow, or when there is stenosis of the aortic or mitral valves, with fatty degeneration, or where there is marked arterial sclerosis, it should not be given.

When immediate heart failure threatens, we do not have to consider the possibilities of the existence of these conditions, and the remedy is administered either alone or in conjunction with strychnine, or nitroglycerin, without hesitation.

Cactus grandiflorus is a better general heart remedy than digitalis. It is a remedy for enfeeblement of the heart's action, which is due to defective nutrition of the heart. This may depend primarily upon disease of the nerve centers, as is quite common in neurasthenic patients. When there is extreme irregularity, or exaggeration of the heart's action, or tumultuous heart action from extreme weakness, this agent is directly indicated, but where tumultuous action occurs from a temporary exaltation of nerve force, or from temporarily increased vital action, the influence of cactus will exaggerate the condition, and in such cases should be avoided.

It is in this class of cases that gelsemium has a direct and specific influence upon the heart. It soothes the nervous irritation, steadies cardiac action, permits the restoration of tone, and contributes toward the return of normal functional operation.

Cactus is a sedative to the action of the heart and will reduce the temperature in those cases in which there is high temperature and great depression of the vital forces, general enfeeblement, and threatened collapse. On the other hand, there are many cases of subnormal temperature which this remedy will elevate to normal more quickly than strychnine. These apparently opposite influences depend upon that influence of cactus which is exercised toward a restoration of the normal functional activity of the heart.

Strophanthus, in its influence upon the heart, acts directly upon the muscular fiber, by a process which is similar to that which ergot exercises upon the muscular structure of the womb. It induces contractility by producing muscular irritation. It is of value in the treatment of dilated heart, and especially in those conditions which depend upon extreme dilatation. Valvular insufficiency in such cases is sometimes improved by it, but if the nutrition of the heart is at fault, the influence of *strophanthus* will be only temporary. It should then be given in conjunction with cactus, *avena sativa*, or phosphorus. In extremely dilated cases, or where atheroma is thought to be present, it may be combined to good advantage with *cratægus*.

Cratægus is of value in old-standing chronic cases, with much valvular inefficiency, and especially where there is a tendency to atheromatous degeneration. It should be given in four- or five-minim doses, repeated as many times each day. In those cases of apparent heart trouble which occur rather suddenly in young people of nervous temperament, who are highly excitable and easily overwrought, and where there seems to be threatened nervous prostration, I have found this remedy of immediate service, and of permanent benefit.

When the exhaustion is complete, and with the exhaustion the patient complains of persistent palpitation, with much difficulty of breathing, deep, sighing respiration, and feebleness from little exertion, I have obtained gratifying results from *cratægus*. In two cases where the valvular murmurs were very pronounced at first, these yielded most satisfactorily to the treatment. I advised enforced rest and concentrated nutrition.

Convallaria regulates the action of the heart, when influenced by reflex irritation. At the same time it is somewhat beneficial in restoring the nutrition of a weakened heart. It influences the size of the pulse, diminishes the number of beats, increases the blood-pressure and the arterial tonus, overcomes dyspnea, and produces regular, natural, and easy respiration, followed by a general sense of well-being. This result is also attained when given for dilatation of the heart, fatty degeneration, or hydropericardium, even when the exact conditions are not permanently improved,

either alone or in conjunction with other nerve sedatives. It soothes the nervous system, relieving nervous irritation, and produces tranquil sleep.

Apocynum cannabinum has not until recently been classed as a heart remedy. It is the remedy when, from heart disorder, with great enfeeblement, dropsy is threatened. Especially is this true if dropsy depends upon compensatory failure, when the pulse is slow, or rapid and feeble, and where there is a general fulness of the tissues. When with feebleness of the heart's action there is hydropericardium, or dropsical effusion, *apocynum* is indicated.

Sparteine is a heart tonic in a given class of cases, and when prescribed with exactness will be the best remedy. When the heart-beats are unequal in vigor and force, when the rhythm is disturbed, it will give prompt relief, whether the heart is rapid or slow, or whether there is stenosis or valvular incompetence, or both.

Strychnine should be given in heart disease when immediate failure is anticipated. It is a valuable remedy, however, in its application to those cases in which there are faults of nutrition. It assists in restoring the nutrition of a weak heart, by whipping up those organs and functions which are involved in the supply of the nutritive material. It may be given in conjunction with all of the remedies above named, which are indicated when the heart is weak, or where there is a general lack of nutrition. I have given it in conjunction with arsenic with very excellent results. In the weak heart of neurasthenic patients I find the arsenite of strychnine a very excellent remedy.

The bromide of strontium is not directly a heart remedy, but there are many cases of irritable heart where the irritation is increased by any remedy that irritates the stomach, or by the fact that a general irritability of the stomach is present. In these cases this remedy will be found of great value. It may be given in conjunction with cactus, or with *hydrastis canadensis*, and in some cases with bismuth. It may be given in from eight- to fifteen-grain doses. In cases of general nervous irritability with irregular heart action, all depending upon chronic gastric disorder, this agent is specifically applicable and will produce satisfactory results.

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Leading Articles.

THE REAL VALUE OF RECTAL ALIMENTATION.

For generations it has been the habit of physicians to attempt to nourish patients by the rectal administration of nutritious substances when, for any cause, the stomach is unable to receive food and digest or retain it. This method has been resorted to with great frequency in cases of gastric ulcer and gastric cancer, and is generally held to be advantageous and advisable. There are certain anatomical and physiological facts which must be taken into consideration, however, when this procedure is employed. There can be no doubt that the function of the rectum is to act as a passageway between the sigmoid flexure and the anus, and further, that it is not designed by nature for the absorption of materials, but rather for their excretion or elimination. It is evident, therefore, that we have no right to expect this part of the alimentary canal to absorb any considerable quantity of nutritious matter. If the nutritious ma-

terial is not predigested, it is inconceivable that it can be absorbed at all, and even if it is predigested the actual amount of foodstuff which passes through the mucous membrane and enters the blood-vessels of surrounding tissues must be very small indeed. In every instance in which such injections are employed, the patient must continue to live chiefly upon his or her own tissues, or the stored-up foodstuffs which are in the body in the shape of glycogen, fat, and proteids. The most that the patient receives from such injections is the quantity of water or fluid which they may contain. Nurses and physicians of experience who have frequently administered predigested milk and egg by the rectum have noted that after some days the patient expels from the bowel solid, or semi-solid, cheesy masses which represent the total amount of solids injected deprived of the fluids which have been absorbed, proving again that little of the proteid injection has been utilized by the body.

Our attention has once more been called to this somewhat important matter by an article in *American Medicine* of February 4, 1905, by Dr. David L. Edsall and Dr. Caspar W. Miller, of Philadelphia. They carried out two lines of experiment, in one of which they provided fats in the form of a soap, and another in which they injected an emulsion which they believed would remain permanently emulsified after it was injected. The experiments with soap were undertaken on account of the claim of Pflüger, that nearly all the fat which is digested in the digestive tract is split and absorbed in the form of soap. The experiments with the emulsions of fat were undertaken because such emulsions are often used in connection with proteids, as in milk injections. Dogs were employed as subjects for experiment. They think that it is possible to prepare nutrient enemata which will permit of the absorption of an amount of food equaling in each day the value of 500 to 700 calories, and in view of the interesting investigations which have been carried out by Chittenden, of Yale, as to the minimum requirement of the human body per day, this amount of foodstuff is not to be lightly considered, since it almost equals that which he thinks is absolutely essential. Nevertheless, they are doubt-

ful whether in the majority of instances much good follows the use of nutrient enemata, and believe that much of the benefit which ensues is due to the fluids and inorganic salts which are absorbed.

That this method of providing the patient with nourishment is advantageous from the standpoint of the friends goes without saying, but the important point, for the practical physician, is that he should not be misled into the belief that he is doing his patient great good, when as a matter of fact the amount of benefit which accrues is decidedly limited.

A NOTE ON THE TREATMENT OF PNEUMONIA.

In the Progress columns of this issue of the GAZETTE there will be found an article entitled "Fifty Consecutive Cases of Pneumonia without a Death," by Dr. Galbraith. It is not the intention of this editorial note to, in any way, cast doubt upon the scientific accuracy of this communication. On the contrary, we feel that the writer should be congratulated upon his success in the treatment of so large a number of patients suffering from this disease. The point which we wish to emphasize is that the facts which he urges concerning the use of massive doses of quinine in this affection should not be accepted as positive evidence of the value of this procedure. In the first place, every physician of large experience knows that although it is true that the successful treatment of fifty cases of any disease naturally gives one confidence in a plan of treatment, it by no means amounts to scientific proof that this plan is better than others commonly employed. Some years ago in this city a well-known practitioner reported 100 cases of typhoid fever treated by the cold-plunge bath with no mortality, but it chanced that in the first ten cases of his second 100 the mortality was nearly 50 per cent, thereby illustrating the fact that many hundred cases are required before a plan can be considered as capable of producing extraordinary results. There is no disease which the physician is called upon to treat which is more subject to these fallacies than pneumonia, because in a great proportion of those cases which recover some doubt must exist as to their

exact character. It is true, on the one hand, that the pneumococcus not rarely produces a typical attack of croupous pneumonia, characterized by rusty sputum, and ending by crisis. It is also true that the pneumococcus more than any other specific organism often produces very aberrant types of infection. In some cases a catarrhal or bronchopneumonia develops, and in still others there is general systemic infection with the pneumococcus without any actual pulmonary involvement. Furthermore, there is no pathogenic microorganism known to bacteriologists which varies so in its virulence when it gains access to the human body, nor one which loses its virulence so rapidly if the conditions suitable to its growth are not advantageous. It not rarely attacks a patient with so little vigor that ordinary care in nursing is all that is needful for recovery to take place, and, on the other hand, if the state of the patient is favorable to its development, it may possess a virulence which defies the skill of the most experienced and capable physician.

Contributions such as that which we are quoting in this article are of the greatest value in that they give us statistics which, when added together, possess great usefulness. Individually, such contributions are, we think, susceptible to the criticisms which we have just made.

A FURTHER NOTE ON DECAPSULATION OF THE KIDNEY IN BRIGHT'S DISEASE.

The readers of the GAZETTE may remember that we have on more than one occasion during the last twelve months taken a positive stand against the performance of this operation on the ground that a knowledge of the physiology and pathology of the kidney rendered such a proceeding irrational. Since that time additional experiments have been published which prove the theoretical objections which we have urged. Our attention is once more called to the matter by a review of Dr. Edebohls's book in the *Clinical Journal* of January 4, 1905. In this article the reviewer takes the ground that the evidence which Dr. Edebohls thinks is convincing is quite unconvincing. Criticizing the reports of some of his cases the

reviewer well says: "It altogether passes belief that Bright's disease was so advanced in one kidney as to be visible to the naked eye at an operation in which the outside of the kidney only was seen, that the disease could be unilateral." The concluding paragraph of the review reads as follows, and embodies in a brief and concise form the opinion already expressed more than once in these columns: "In conclusion if any one contemplating decapsulation of the kidney for chronic Bright's disease will pause, and before doing so read this work, he will then quickly see that there is not the slightest warranty for such an operation."

THE INTRAVENOUS INJECTION OF DIPHTHERIA ANTITOXIN.

Nearly two years ago we called attention in the GAZETTE to the suggestion of Dr. Cairns in the *Lancet*, that diphtheria antitoxin should be administered intravenously in those cases in which there was evidence of profound infection. It will be remembered that Cairns reported fifty cases of diphtheria, twenty of which were treated in this manner, with three deaths. In the *Lancet* of December 24, 1904, we note with interest a report made by Dr. Biernacki, of Glasgow, and Dr. Muir, in which they detail their experiences with the method suggested by Cairns. They seem to be doubtful as to the advantage of this method of treatment over the ordinary subcutaneous injection, and yet, on the other hand, they tell us that there was a mortality of only three in thirty-eight severe selected cases. The fact, however, that there was a diminution in the mortality of cases of diphtheria under their care within the last few months prevents them from believing that all of this good result was due to the method which they employed.

DISLOCATION OF THE SEMILUNAR CARTILAGES.

Probably because of the increasing popularity of games such as football, what used to be termed internal derangement of the knee-joint, but is now known as fracture or displacement of the semilunar cartilage or rupture of the internal lateral ligament, with a partial outward luxation

of the tibia with the cartilage, is a fairly common injury. It occurs after a sudden and violent side or twisting strain, and is characterized by intense pain and impairment of the movement of the knee. This is often complicated by an almost immediate effusion of blood into the joint. If the cartilage be merely torn there may be no displacement. If it is displaced anteriorly or to the side it can usually be felt as a distinct projection. In any case there is extreme local tenderness. The acute symptoms rapidly subside under rest and heat, but as a rule there is left for months, sometimes for life, some weakness and tenderness in the joint, with recurring attacks of synovitis from slight traumatism. From the fact that the internal fibrocartilage is firmly fixed to the internal lateral ligament in addition to its anchoring by the coronary ligament, whilst the outer meniscus is comparatively loose, it would naturally be expected that displacement or fracture would commonly involve the latter. This, however, is not the case, probably because of the comparative immobility of the interior cartilage.

The treatment immediately following this injury should have for its end the limitation of the motions of the joints to flexion and extension, the bracing against side strain and the absolute inhibition of rotation. Such an apparatus can readily be adapted by any instrument maker. It should be braced by a steel band passing upward from the shoe, and for some time the motion in flexion should be distinctly limited by hinges at the knee.

In spite of such an apparatus, or more commonly in the absence of any bracing treatment, a knee in which the internal cartilage has once been displaced often remains a constantly recurring source of trouble, mainly because the efficiency of the operation for its removal is not sufficiently recognized. It must, however, be clearly recognized that there are few operations in surgery which more imperatively demand such absolute cleanliness and thorough preparation as can only be secured by the properly equipped operating-room of a hospital.

The incision can be made vertically to the inner side of the patella, or in a longitudinal direction at the level of the joint, and should be about three inches

in extent. After arresting the external bleeding the joint is opened, and the displaced cartilage is drawn out with a small blunt hook and removed.

Providing the operation is easily accomplished and there has been no traumatism or internal knee bleeding, there is no necessity for drainage. The knee should be kept splinted for two weeks, after which careful massage is begun.

The operation of suturing the patella in place has been undertaken a number of times, but with distinctly less favorable results than those following its removal. Indeed, the removal of the entire meniscus seems to cause so little impairment that those subjected to this operation can again take up athletic sports without inconvenience to themselves.

TREATMENT OF MOVABLE KIDNEY.

Although it might be supposed from the surgical literature of the day that the operation of stitching the movable kidney in place had become as infrequent as was the case ten years ago, a search of hospital reports shows that many surgeons are still enthusiastic practitioners of the method, and that the supply of patients willing to submit to this operation is by no means exhausted. In regard to the operation itself, it has been pretty conclusively shown that the kidney is normally a movable and constantly moving organ, being influenced to a slight degree by each respiratory effort; that its fixation by sutures even when applied by the most approved method is uncertain at the best; that in many instances these sutures tear completely out, even before the operating wound is closed; that the clinical results in regard to the cure of symptoms which are responsible for the patient seeking surgical intervention are far from satisfactory; that in many instances prolonged rest in bed in the dorsal decubitus seems to be a factor in accomplishing relief quite as important as the surgical operation.

Actuated by a consideration of these facts Treves has, in his characteristic manner, contributed an extremely interesting article in which he speculates as to the reason for the failure to discover the pathological condition known as movable kidney up to comparatively recent times. He says: "It can scarcely be assumed

that the movable kidney is to be ranked among the many inventions of the ever-active nineteenth century, or that it is one of the teeming products of the productive Victorian era." Nor does he believe that it is a stigma of degeneration, since such stigmata do not have an abrupt appearance, and since there is no mention of movable kidney previous to the nineteenth century. He calls attention to the fact that the kidney is held in place by the perirenal fascia and fat, by the general pressure of the abdominal viscera, by the configuration of the lumbar recesses in which they are lodged, and to a minor degree by the vessels. He quotes at length Glénard's well known paper upon the examination of movable kidney and the degrees of mobility, entirely rejecting the theory of the mesonephron, which he states has long occupied the position of "an anatomical Mrs. Harris."

As to the symptoms, there seems to be no definite relation between the mobility of the gland and the clinical phenomena associated therewith, since the kidney may run wild in the abdomen, the patient at the same time being free of any discomfort or trouble, whilst on the contrary the very first evidence of mobility of the kidney may be associated with an acute torsion attack. Such an attack is sudden, intense, attended with acute renal pain, vomiting, abdominal tenderness, and collapse. At times it is relieved by posture. It is often moderate in severity. Aside from the torsion attacks the symptoms ascribed to movable kidney "may be said to include all those manifold ills which make up the melancholy history of the 'enjoyers of poor health.' . . . Not a few of the subjects of this trouble may be described as presenting an assertive peevishness and a whining type of melancholy which their friends describe as 'trying.' From the very precise account which Dickens has given of the mental attitude of Mrs. Gummidge, it may be safe to assume that she had a movable kidney."

Dilatation of the stomach, intestinal obstruction, and jaundice have also been noted as incident to movable kidney, and Treves himself has reported two cases in which this pathological condition exactly reproduced the phenomena of hepatic colic followed by jaundice.

As to the treatment, he states that since

1895 he has abandoned the operation of nephrorrhaphy, excepting in cases in which there were torsion symptoms, some cases in which the patient would be residing in the tropics, among hospital cases in which the patient had to work for a living, and could neither indulge in long sustained rest, nor properly manage a truss requiring delicacy in adjustment. The rest treatment continued for weeks is earnestly advocated in patients in whom it is indicated. This is supplemented by a light truss so constructed that a thin, carefully padded metal plate exercises pressure upon the abdominal wall by means of two springs. The pressure is exerted at the lower and inner margins of the plate, so that the kidney is forced upward and outward.

The apparatus must be most carefully adjusted. The instrument weighs about six ounces, and is perfectly comfortable after it is worn for a few days. Treves states that he has had more than 300 of these trusses made for patients in private practice, and in 95 per cent they proved absolutely efficient. The kidney has been kept in place and the distress that existed has entirely vanished. As figured in the illustration of his article his truss appears in the form of a plate about the size of the human hand, held in place as is the ordinary inguinal truss, excepting that the encircling spring passes above the crest of the ilium. There is a perineal band to keep it from slipping up.

Many surgeons have long since abandoned the operation of nephrorrhaphy, excepting when a movable kidney is associated with distinct renal symptoms. Few, however, have found advantage in the application of any form of pressure pad. The consensus of opinion is to the effect that movable kidney is customarily associated with a gastropexia and weakness of the abdominal muscles, and the treatment adopted has had for its underlying principle a period of rest followed by exercises designed to strengthen the abdominal muscles, and by the application of a straight-front corset or other form of abdominal support which, by pressing the viscera upward and backward, increases the intra-abdominal pressure. Where the movable kidney is incident to a great loss in body weight treatment directed toward the increase of fat is distinctly serviceable.

Reports on Therapeutic Progress

ON THE ACTION OF PERCHLORIDE OF IRON IN BLOOD POISONING AND OTHER DISORDERS.

Physicians and surgeons have for years followed the perchloride of iron method of treating sepsis. LATHAM in the *Lancet* of November 19, 1904, reminds us that various observers have from time to time called attention to the beneficial action of the perchloride of iron in different forms of blood poisoning. As Sir Dyce Duckworth has pointed out, Mr. G. Hamilton Bell in 1851 was the first to do so with regard to its action in erysipelas. Mr. Bell states that he had made use of it for upwards of twenty-five years without having, in a single instance, failed of success; giving in mild cases 15 drops of the tincture every two hours, in severer cases 25 drops, "persevered in night and day however high the fever and delirium." These statements were confirmed by his brother, Dr. C. Bell, who states that "it is a remarkable circumstance in the exhibition of this valuable remedy in the erysipelas diatheses that, although given in much larger and more frequently repeated doses than have been recommended in our dispensaries, it never produces headache, and when this symptom is present it quickly relieves it; at the same time it reduces and regulates the pulse, thus showing that in this state of the system it has a soothing and sedative as well as an alterative effect." He administered the remedy in doses of 25 minims every two or three hours. Dr. G. W. Balfour also regarded this preparation "as a certain and unfailing remedy;" a few doses, he says, of 20 minims "suffice to remove the pain and lessen the heart's action; it never produced headache or other unpleasant symptom, and was continued with advantage through the highest delirium; its curative action seems, as G. Hamilton Bell supposes, to be exerted on the capillary vessels." Mr. J. Hawkes, who administered the remedy in one-drachm doses three times a day, indorses the views of the above mentioned observers.

In scarlet fever beneficial effects of the remedy have been reported by Dr. H. S. Byrd of America and by Mr. Meade of Bradford, both influenced by the analogy which to them appeared to exist between

this disorder and erysipelas. Dr. Byrd prescribed the remedy in small doses of three or four drops every four hours. He was so satisfied with the results that he would not exchange it for all the other remedies which he had before used in scarlet fever.

The author's own experience of the remedy in these disorders makes him hesitate to prescribe it with the boldness of some of the authorities above referred to—at all events, for any lengthened period. Large doses not infrequently increase the fever and set up intestinal irritation, palpitation, and headache. "Every physician is acquainted with the symptoms that arise when large doses of iron have been taken for some time. Irritation of the abdominal organs, which evidently begins in the intestine, is set up and may extend to the peritoneum and be accompanied with the usual symptoms—pain, discomfort, a tendency to vomit, diarrhea or constipation, and general exhaustion, the last, however, not being apparently dependent upon the condition of the abdominal organs. These symptoms may persist for some days even when the iron is immediately discontinued, and may then gradually subside." Moreover, if, as the author maintains, the beneficial effects of the remedy are largely due to the free chlorine it contains heroic doses are not called for. The most judicious plan is to give moderate doses, such as were administered in a case recorded by Sir Isambard Owen, every six hours, cautiously watching their effect and administering them more frequently if the patient will bear them; if not, to keep to moderate doses, and if further antiseptic action is required, to effect this by the internal administration of chlorine water alternately with, or in the intervals between, the doses of iron. In this way the irritation which may arise from large doses of the latter remedy may be avoided.

Various writers in the past century have testified to the efficacy of chlorine water in scarlet fever and other forms of fever, especially in those of a low type. Braithwaite was the first to use it internally, and held it to be as truly a specific for scarlet fever as mercury for syphilis or quinine for ague. Sir Thomas Watson calls attention to the high praise bestowed upon this remedy by Messrs. Taynton and Williams in the treatment of scarlet fever. Under their care was a schoolboy suffer-

ing from scarlet fever "who was most dangerously ill. The skin was covered with an eruption of a dusky hue; the nostrils excoriated by the acrimony of the discharge; the greatest difficulty in swallowing anything; low delirium with a very rapid pulse; in short, every symptom of approaching dissolution. In this state he began to take the chlorine water in the evening, 1 drachm in $\frac{1}{2}$ pint of distilled water. The nurse was directed to give him as much as she could prevail on him to swallow. On visiting him the following morning there was evident amendment, and in twenty-four hours he appeared out of danger. Encouraged by this favorable case we gave it to patients of all ages; and we can most solemnly declare that it proved successful in almost every case in which we were called in time, and in which the medicine was faithfully administered."

In the *Edinburgh Medical Journal* (vol. xvii, p. 514, 1872), Dr. W. G. Balfour states that Dr. Matthew Gairdner, of Crieff, was the first to administer chlorine in diphtheria, and with marked advantage. Dr. Balfour further states that whatever be the theory of the action of chlorine in cases of diphtheria, he "has not found it fail in the treatment of this disease when faithfully given since Dr. Gairdner called his attention to it." The chlorine water was prepared as follows: "Put eight grains of chlorate of potassa in a strong pint bottle and add a drachm of strong hydrochloric acid; close the mouth of the bottle whilst the violent agitation lasts, then add water ounce by ounce with constant agitation until the bottle is full. An adult may use the whole pint in a day." Sir Thomas Watson adds: "The chlorate should be pulverized, and in cold weather the bottle should first be warmed." The amount of potassium chlorate might be increased with advantage. The author suggests that instead of 8 grains, 20 grains of the powdered chlorate should be used with one drachm of strong hydrochloric acid, and water added as above directed to 20 ounces. Peroxide of chlorine and chlorine are contained in the solution. The following expresses the reaction:



We have sufficient evidence, then, that in various forms of blood poisoning chlorine and the tincture of the perchloride of

iron may act beneficially. The question remains whether these remedies should be employed independently of Roux's or other serum, or in conjunction with it, and in the latter case at what stages should one or both be administered. This can only be answered by the results of further observations.

*ALCOHOL CONSIDERED AS A FOOD
FROM A PRACTICAL STAND-
POINT.*

It has now been established by several well-known classical researches that up to a point alcohol is a food, and past that point it is a poison. To draw a sharp line of demarcation which shall define for all persons when its action as a food exactly ceases and when its effect as a poison exactly begins is scarcely possible. The tissues of different individuals differ greatly in regard to their oxidizing capacity, and it is a matter of common observation that there are persons who can tolerate more alcohol than others without apparent injury to health. Again, occupation and environment very materially affect the powers of the body to assimilate alcohol. Thus men who pursue an active life in the open air are able to indulge in alcohol more freely than are those who are engaged in sedentary occupations. It is all a question of functional activity, of the condition of the tissue to oxidize the combustible material presented to it. It has been conjectured that the oxidizing power of the tissues, over alcohol in particular, must have steadily diminished since the time when our ancestors drank their bottles of port with impunity. Such a performance at any rate is seldom heard of nowadays. The quantity of alcohol imbibed in such an exploit must obviously be greatly in excess of the limit of the body's oxidizing capacity, as deduced from scientific experiment. One and a half fluidounces of pure alcohol is the utmost quantity that can be completely utilized as food in the human body per diem, according to experimental observation. A quantity ingested additional to that amount therefore may escape oxidation, incomplete products of combustion, so to speak, may be formed, and toxic effects ensue.

It is therefore interesting to consider what amounts of the ordinary alcoholic

drinks contain this permissible allowance of alcohol—say one and a half fluidounces—which is assumed to be the extreme limit of the oxidizing power of the body. Taking brandy and whiskey to contain 50 per cent by volume of alcohol, three fluidounces or six tablespoonsfuls of these spirits would contain the maximum allowable daily dose. This would be the equivalent of about two glasses of brandy or whiskey and water per diem, each containing three tablespoonfuls of spirit and a half-pint of water, to exceed which would be to risk a toxic result. Port and sherry, with their average of 20 per cent of alcohol, would contain the permissible amount of alcohol in seven ounces or a little over two wineglassfuls, assuming each to contain about three fluidounces. The limited quantity of white wines, claret, or champagne, with 10 per cent of alcohol, would be 15 fluidounces, while one and a half fluidounces of alcohol represent about 30 fluidounces or a pint and a half of table beer. The question is, however, complicated in the case of wines and beer, because these contain nutritive matters in addition.

Apart from the fact that to avoid injury to health the amount of alcohol consumed per diem should be limited strictly to one and a half fluidounces, it cannot be regarded for practical purposes as a food in the sense of a true reparative. It is at best a producer of heat and energy, and then frequently at the expense of healthy cellular activity, while its cost from the point of view of actual food value has been calculated to be eight times more than that of bread.—*Lancet*, Nov. 19, 1904.

*THERAPEUTIC VALUE OF COLORADO
CLIMATE.*

BYLES, in the *Medical News* of November 26, 1904, writes exhaustively on this subject. From his study of the climatic conditions of Colorado, and especially from the experience of the profession there, he believes that benefit or complete recovery may be expected in the following class of cases:

In all cases of an inherited tendency to tuberculosis, as a prophylactic measure; in tuberculosis of the bones or parts of the body other than the lungs, with a view to prevent pulmonary involvement; in early pulmonary tuberculosis when it

occurs in persons who are not of a markedly nervous type, and when the disease is not accompanied by persistent high fever, and is of a chronic rather than an acute type.

In cases of moist nasal catarrh, when not caused by nasal deformities; in bronchial catarrh, with or without asthma, especially in children and young adults; in most cases of purely nervous asthma, and in many cases of hay-asthma.

In chronic empyema and unresolved pneumonia, and in many cases convalescing from pneumonia, who are under fifty years of age. If the patient is old, has heart disease, or is greatly emaciated, a sedative climate is better, at least until a fair amount of strength has been gained.

Patients who are convalescing from other acute diseases or suffering from physical or mental exhaustion, from overwork, worry, want of exercise, malarial affection or tropical cachexia, mild cases of anemia, most cases of glycosuria, and many cases of nephritis are improved by this climate. Articular rheumatism is less frequent and muscular rheumatism more common here than in the East.

Diarrhea and digestive disorders are not as prevalent and trachoma is very rarely seen.

But there are two sides to this question, and we must not fail to mention the contraindications. Some of these relate to the patient and others to the disease.

Patients over sixty years of age should not, as a rule, move to places of great altitude, because their muscles have lost their elasticity and cannot accommodate themselves to the change.

The muscular fibers of the heart and arteries are of especial importance in such cases. More work is thrown upon the heart and arteries, and most organic diseases of the circulatory organs are made worse. It is generally stated that this climate is contraindicated in cases of weak or congenitally small heart, and in functional disturbances of the heart without organic lesion. The author's own experience is not in accord with this idea. He believes the constantly increased work thrown upon the heart, together with the increased gain in vigor, which is usually present, have the effect of so increasing the muscular tonus and regulating the nervous supply of the heart as to render its action more nearly normal.

The exhilarating effect of altitude on the nervous system is well known. Many residents of that locality are frequently obliged to change for a time to places of less elevation. If they do not they suffer with insomnia. For this reason persons of an extremely nervous type seldom improve there, although some cases of a gloomy tendency are much benefited.

As contraindications in certain diseased conditions the author mentions consumption, with a tendency to rapid breaking down of tissue, associated with high fever. Cases of acute phthisis or phthisis florida, and those in the advanced stages of the disease, and all cases with a persistent high temperature, even in the early stages, are not improved by this climate. He believes in such cases the end is often hastened by the change rather than retarded.

Intermittent attacks of high temperature do not contraindicate resort to altitude, unless the temperature is excessive or the patient extremely nervous. Hemoptysis is not a contraindication. Structural alterations of the heart, atheroma of the blood-vessels, aneurism or emphysema, either alone or as complications of other diseases, forbid removal to altitude.

THE TREATMENT OF OTITIC SEPTICEMIA.

In the *Journal of the American Medical Association* of November 26, 1904, RANDALL gives the following advice:

Great help is found in the employment of hypodermoclysis or enteroclysis. The value of the first of these is too well assured to need much urging, especially with any one who has employed it. Yet those who have not employed it will look with some hesitation to its demand for strict asepsis, and will regard it as a surgical procedure which few physicians, fewer trained nurses, and no others can possibly undertake, while patients or friends will refuse it on the score of its painfulness and its unknown possibilities of evil. Yet it should be feasible to sterilize a fountain syringe by boiling and a large hypodermic needle by alcohol, and to boil the water and its due proportion of salt, permitting the giving of such injections at any bedside without risk and with minimum trouble.

The enteroclysis, on the other hand, is a familiar matter to every household, and

will be readily accepted in many cases where the other might be absolutely rejected. Its value may be less, as its action is certainly slower and less striking; but it is so easy of performance that the patient will rarely make the least objection, and it can be repeated with most gratifying results again and again in cases where the occurrence of high fever has marked some complication, but study fails to indicate the seat of the trouble. It has seemed fair to assume in such instances that the condition is as yet a mere toxemia, whether by absorption from the ear, the intestines, or some other part. The vigorous use of the high saline enema has been followed by prompt fall of temperature and disappearance of all disquieting symptoms.

In the severer cases where meningitic symptoms are present, but without localization, and operative opening of the skull seems premature and haphazard from lack of localizing indications, there is great aid to be gained from lumbar puncture. This does not mean that the milder measures with free catharsis and all medicinal aids should be neglected. These should be freely employed; but in addition to these puncture of the lumbar canal, if done with fair anatomic knowledge and a clean needle, should be harmless yet frequently valuable. This value is not merely in the diagnostic aid afforded by the study of the fluid drawn off—its therapeutic value is equally great, although often overlooked. Marked convulsive attacks may cease wholly under its relief of tension, stupor and other evidences of brain pressure may lighten and pass away, and the main credit for the gain will properly belong, in many of the cases, to the lumbar puncture. Its real therapeutic rather than merely diagnostic value points to its repeated employment many times a day if urgent symptoms demand; and it is this rather than other points as to its use on which the writer feels he can insist. The antitoxic effect of quinine, permanganate of potash, and other drugs is probable but not proved; and the antistreptococcic serum seems to work in other hands, if we may believe reports, but it is apt to prove barren in our own hands.

Glycogen, either by the mouth or hypodermically, has claims made for it equal to those which can be urged for the most potent remedies, but it remains to be

proven how often it will equal or approach such expectations. It has seemed valuable in the author's hands, and he can commend its further employment.

The author especially wishes to urge the frequent and full employment of enteroclysis in cases of otitic toxemia as a remedy potent and general in its effect, while almost ridiculously simple in its employment. The temperature of the water may be warm, medium, or cold, as the inclination or condition of the patient dictates. The amount must vary from two to three ounces in the infant to a pint in some adults, in accordance with the capacity of the bowel. The introduction must be slow, with slight pressure—a foot of elevation of the reservoir is enough—and the perineum may need to be supported for many minutes after the withdrawal of the tube if retention is to be secured. Even if much of the fluid is lost, its flushing of the lower intestinal tract is of great importance, and the amount of absorption is generally greater than might appear. Quinine and other medicaments may be added to it, or the nutritive materials if other means of feeding are unsatisfactory. But with all this simplicity, it is probably as efficacious as most of our possible interventions; and in the vague, indeterminate cases, where surgery must wait for clearer indications, it may often forestall serious complications and prove the means, not brilliant but real, of saving life.

THE TREATMENT OF TUBERCULOSIS OF THE LUNGS.

In the report of the medical director of St. Joseph's Sanatorium to the advisory board Dr. BULLOCK states his plan of treatment as follows in the *Medical News* of November 19, 1904:

In very chronic cases with cavities and extensive fibrosis, in which the sputum is difficult to raise, the fluid extract of cocillaña has often proved valuable. The writer has a number of such cases in which the patients state they could hardly dispense with it. Cocillaña is best administered in a syrup in doses of fifteen or thirty drops every three or four hours. In hemorrhage, and especially in chronic blood-spitting, we have a potent remedy in the chloride of calcium, which may be employed in much larger doses than are usually recommended. When given well

diluted with water the writer has never seen it disturb digestion. Carbonate of guaiacol, carbonate of creosote, and benzozol have a well-defined usefulness in the treatment of the associated infections of pulmonary tuberculosis. In pure tuberculosis in which there is a normal temperature the author is not convinced that they are of any value. Their field is found in those febrile cases in which the streptolytic serum is either not indicated or is insufficient to remove all of the mixed infection. Benzozol and the carbonate of guaiacol may be used for quite extended periods without disturbing digestion, and are, in fact, often beneficial in fermentative indigestion, especially that form associated with foul breath.

One of the hardest tasks presented to the phthisiotherapist is that of preventing undue loss of body proteids, and for this purpose ichthyol is second only to a proper dietary in aiding nutrition and arresting loss of weight. The author has frequently tested its use by withdrawing it from a patient who was apparently thriving upon it, and immediately loss of weight would follow, to be checked only when ichthyol was again prescribed.

Irrational as it may seem with our present knowledge of tuberculosis, the author is quite ready to say a good word for counter-irritation in the form of blisters applied over an active lesion. He has seen temperature drop a point or two coincident with their employment, especially if the bleb is carefully preserved and the serum permitted to resorb—a point he learned from his friend, Dr. J. Solis Cohen.

In laryngeal tuberculosis, especially of the ulcerative type, he is convinced that frequent disinfection with formalin is a valuable procedure. In such cases, in those who can be taught to do it, he directs the patient to spray the larynx with formalin solution several times daily, and twice every day they report to him for careful mopping with the same solution. After all is said and done, however, the author is convinced that in this class much more depends upon getting the patient into good condition than upon any local treatment. When the patient improves generally, improvement in the larynx usually follows, and *per contra*, in a steadily failing patient nothing but relief of pain is accomplished by laryngeal medication.

SUGGESTIONS FOR THE FEEDING, MEDICAL AND HYGIENIC TREATMENT OF DIPHTHERIA.

FISCHER, in the *Medical News* of November 19, 1904, reminds us that feeding has an important influence on the prognosis of a case of malignant diphtheria. Knowing the effect of the diphtheritic poison, it is imperative to sustain the system by proper feeding. As there is a decrease in the quantity of hydrochloric acid secreted we must allow for this in ordinary food. An infant should be given one to five drops of diluted hydrochloric acid after its feeding, and if digestion is not improved, we must resort to predigested milk food consisting of peptonized milk.

When bottle feeding or cup feeding is unsuccessful, or when children refuse food, gavage should be remembered. Gavage through the nose is the plan of feeding very rarely used at the Willard Parker Hospital. In some cases the Casseberry method of feeding has served very well. When vomiting is provoked by gavage and the tube is coughed out, the author has frequently resorted to spraying the pharynx with a three-per-cent cocaine spray several minutes before the time of feeding. When this method does not relieve the nausea and vomiting, absolute rest of the stomach is indicated, and we must resort to rectal feeding. Rectal alimentation should be given only by a trained nurse or by the physician himself. The author has had excellent results in the feeding of intubated cases by rectal alimentation when it was carried out by one who was competent. The rectum and colon are first washed clean by means of soap water. After the feces are washed away, he usually instructs the nurse to wait one-half hour, and then inject two or three ounces of the following:

Yolk of egg, 1 yolk;
Starch water, 2 ounces;
Peptonizing powder, 1 tube;
Salt, a pinch.

Mix thoroughly, and inject slowly into the colon through a funnel to which a soft-rubber catheter is attached. These injections may be repeated every four hours.

In nasal diphtheria very high fever frequently persists. Great relief is afforded by irrigating the nose and removing the membranous plugs. Septic infection will persist until the nose is

thoroughly cleaned. The ease with which a membranous patch will extend upward from the posterior pharyngeal wall should be remembered when determining on a plan of treatment. When the membrane exfoliates it will result in serious impediment to the entrance of oxygen. Mechanical treatment by means of normal saline solutions will wash away these septic plugs and relieve obstruction to the entrance of air. Attention to the nose is more important in diphtheria than in any other disease. The rule of the author is to wash the nose with a weak permanganate of potash solution, or normal saline solution, whether the case has a tube in the larynx or not. The writer's experience has been so good in tube cases that he does not hesitate to advocate the use of nasal washing in every case of diphtheria as a routine measure. Toxic substances can be more directly eliminated in this manner than by any other means.

Enlarged lymphatic glands have been greatly improved during the course of diphtheria when these necrotic patches were removed from the nose by cleansing, and it is the writer's belief that the same holds good in the treatment of lymphadenitis cervicalis and in scarlet fever.

When the appetite is so poor that milk will be refused, especially during acute febrile attacks, the curd should be removed from the milk by making junket and straining the same. Whey can be given in small quantities more often than milk containing the curd. Vegetable proteids can be fed in the form of soup made from split peas or lentils, or in the form of almond milk made by macerating almonds with water.

Next in importance is the elimination of poison through the bowels. The treatment of diphtheria in children should always be commenced by producing active catharsis. The frequency with which pseudomembranes and infected secretions are swallowed shows the importance of this treatment. Children rarely, infants never, expectorate—they invariably swallow the loosened membranes. By producing liquid stools we eliminate toxins and thereby reduce the amount of toxemia. The best drug for cleansing the intestine is undoubtedly calomel. It is best administered by giving a large dose followed by repeated small doses. Salines are also

advised. Vomiting will sometimes be produced after the administration of calomel; if so, then vegetable cathartics such as elaterin or podophyllin in one-tenth-grain doses or more should be tried. This active catharsis should be continued during the whole course of treatment, or until convalescence is established. We need not fear to deplete the body by this active cleansing, especially if we aid the volume of blood by introducing normal saline solution.

USE OF DIAPHORESIS AND DIAPHORETIC AGENTS IN OPHTHALMIC THERAPEUTICS.

Woops in writing on this subject in the *Journal of the American Medical Association* of December 24, 1904, concludes that the greatest utility of diaphoretics is in the acute congestive and exudative lesions of the uveal tract.

Diaphoretics are useful in retinal detachment produced by exudate from choroidal vessels during the course of acute choroidoretinitis. Judging from reported cases, they are also useful in the retinal detachment of high myopia. It is doubtful if restoration of function in the detached retina is usual or permanent.

Diaphoretics are useful in alcohol-tobacco amblyopia, and probably in other forms of toxic blindness.

Diaphoretics influence to a slight extent only, if at all, lesions of the cornea and sclera.

Diaphoretics are useless in atrophic and cicatricial lesions.

In the same journal WOODRUFF gives the following advice as to the technique employed in getting the patient into a profuse perspiration: Hot baths should be given when the stomach is empty, as being less liable to produce any untoward effects, this being especially the case when pilocarpine is to assist in the production of the sweat. The patient should be in bed and wrapped up to the neck in a blanket, and again covered with at least four blankets. Under the latter half a dozen quart bottles containing boiling hot water should be placed. If used at all, pilocarpine should now be given hypodermically, beginning with one-tenth to one-eighth of a grain, the dose of which can be increased if considered necessary

to produce a more profuse perspiration, but usually a larger amount of the drug is unnecessary and not at all essential to the success of the treatment. The patient is now given to drink at least a pint of hot water, weak, sour lemonade, or tea. In a few minutes he should begin to break out into a profuse perspiration, which should continue for at least two hours, only stopping short of that time if he shows any bad symptoms. At the end of the sweat he should be thoroughly dried and the skin rubbed with alcohol, and then allowed to rest the remainder of the day. This treatment should be continued at least every other day until twelve baths are taken. At an interval of two or three weeks a similar course of treatment should be repeated, and then continued at various intervals so long as necessary. It is important that the treatment be carried out systematically and at regular intervals if we desire to get results.

FIFTY CONSECUTIVE CASES OF PNEUMONIA WITHOUT A DEATH.

Under this optimistic heading GALBRAITH makes a clinical report in the *Journal of the American Medical Association* of January 28, 1905.

The author maintains that our principal efforts should be directed to applying measures that will fortify the heart and destroy the products of organisms that produce sepsis.

In quite a number of recent cases he has noticed that rusty sputum has been delayed until the third or fourth day of the disease, and continues only one or two days, probably due to a mixed infection or the treatment.

Just what the blood count will show after the administration of large doses of quinine and iron in pneumonia is speculative on the part of the author, but he ventures to say a favorable report will be made.

The fact that many of the older practitioners claim to have given quinine in big doses, not alone in pneumonia but in nearly every inflammatory disease, does not interfere with his unique method of treatment, that is based on clinical observation and specific conditions for its administration.

To enumerate the diseases that have

been treated by large doses of quinine would be as difficult a task as it would be to recite the authorities on its use since its discovery by Dr. Duncan, of Edinburgh, in 1803.

The record of the second of the author's cases shows that 115 grains of quinine were given the patient within one hour after his arrival at the hospital. This may impress many as an aggressive measure, but, regardless of any impression of this character, the future will probably record many larger doses. Experience will, no doubt, demonstrate that the timid practitioner will reserve the application of this method as a substitute for strychnine and alcohol, which are so frequently administered during the excitement prior to dissolution.

The author strongly maintains that the use of stimulants, alcohol and strychnine, prior to the stage of resolution, is a dangerous practice, as it increases the mechanical conditions that are distressing the patient instead of strengthening the disabled heart.

He finds that bromide of lithium in combination with chloral controls the nervousness and delirium, which is probably produced by toxemia, much better than does morphine, as the latter given in sufficient quantity to alleviate these conditions not only embarrasses respiration, but interferes with the secretions.

It would not be surprising if the near future revealed some interesting knowledge concerning the incubation period.

The absence of complications, with one exception, in the fifty cases has possibly been influenced by the treatment. The author does not feel justified, however, in making any positive claims of this character on so limited a number of cases.

He has discarded all external applications, and dresses his patients with as light-weight clothing as possible. Expectorants, excepting as a vehicle, are seldom used. A liquid diet, with plenty of plain alkaline drinking-water, is advisable. The syrup of glycyrrhiza and yerba santa is an excellent agent in which to suspend quinine, and also acts as a pleasant cathartic. Carbonated waters and solid food should be avoided prior to beginning resolution, as any distention of the stomach will not only interfere with respiration, but will embarrass the heart action.

been ruptured, but swelling of the mesenteric glands has occurred, and that this had caused local suppuration with adhesive peritonitis affecting certain coils of the intestine, and thus caused serious disturbance of peristalsis. These cases are thought to be very rare, but since attention was first called to them, every little while sees the report of another one. It is clear that where perforation cannot be found, ruptured mesenteric glands should be looked for and their contents removed as far as is possible and consistent with the patient's condition.—*Medical News*, Nov. 19, 1904.

PNEUMONIA; THE VALUE OF INTERNAL MEDICATION AND LOCAL EXTERNAL APPLICATION.

In the *Journal of the American Medical Association* of December 10, 1904, Dock in writing on this subject urges the necessity for rest, physical and mental. The possibility of a long course, or of serious complications or sequels, makes it wise to conserve all the energy possible. For mental and nervous rest, quiet, the absence of all mental effort, and sufficient sleep, are essential. Regarding the mind, he finds it useful to follow the principle that every pneumonia patient is delirious, even when, as we so often see in the case of physicians, the patient is able to carry on complicated trains of thought. Even in these temporary lack of attention by the nurse may result in overexertion, serious accident, or even death.

Proper feeding is important for the same reasons that indicate rest, and as a full meal or an indigestion may cause serious inconvenience to the heart or lungs, the food must be nutritious, easily digestible, and given at short intervals. Water is useful, not only on account of the high temperature, but also to assist in washing out the poisons formed in the disease, and in keeping up the volume of the blood. Like the food, it must be given with regard to time and amount, and it may be medicated or flavored, or carbonated, provided the latter does not cause distention of the stomach. Both for comfort, and to lessen the danger of infection of self and others, scrupulous care of the mouth is necessary.

In pneumonia, as in most other acute diseases, a cathartic in the beginning often

induces to comfort and saves trouble in the later stage. Calomel is a convenient remedy, but castor oil or other preparations may be used if preferred.

In some cases of pneumonia nothing more is needed than the treatment mentioned, except a faithful and cool-headed nurse and a physician to examine the patient and chart at intervals, noting at each visit the general condition, state of pulse, color, breathing, cough, expectoration, lungs, heart and pleura, stools and urine, mouth and abdomen, and frequently the ears. The examination of the blood for the number of leucocytes is often interesting, but not essential during treatment. The diagnostic value of blood examinations in pneumonia needs no argument, and the cultivation of the bacteria in the blood is of great value in explaining many irregularities and complications.

Often there are symptoms that need attention.

Pain is often severe, either in the chest or abdomen, and suggests the use of morphine. In most cases an ice-bag will relieve pain just as well, and its use avoids the untoward effects of morphine on the stomach and mental condition. This requires some courage, and often involves much difficulty to change from the use of the hypodermic needle or Dover's powder to the ice-bag, but those who have used the latter will agree with the author when he says that one can often see patients crying with pain in spite of liberal doses of morphine, who quickly become calm with the ice-bag.

Heat sometimes seems to relieve pain as well as cold, but the latter has other advantages. Among these is the relief of the cough, and the improvement of the breathing.

It is necessary to speak of expectorants, because there are many who believe these are necessary for the removal of the exudate, notwithstanding positive knowledge to the contrary. In some cases there is a complicating bronchitis that can be treated with advantage by expectorants, but in many cases the expectoration and cough are kept up by unnecessary drugs.

Fever rarely requires active treatment in pneumonia. Coal-tar antipyretics are with reason reprobated in print, but still used too much in practice. If the nervous or cardiac symptoms are severe, not from the fever generally, but from intoxica-

tion, ice-bags or cold coils to the head and heart region, or bathing, are useful. If the symptoms are only moderately severe local ice-bags, or coils, with tepid sponging of the body will suffice. If toxic symptoms are marked the full bath, as in the Brand treatment, either beginning at 65° F., or reducing from 85° to 90° F., according to the case, with friction often gives striking relief to all the symptoms. In some cases insomnia more than delirium requires treatment. Here morphine is useful, a single dose often being sufficient, though a full dose of bromide is sometimes successful.

Tympanites usually yields to simple enemas if treated early, as it should be. It may require calomel, turpentine enemata, or the rectal tube. An ice-bag to the abdomen often does good.

Other internal medication is not a regular part of this treatment. Alcohol can be left out without loss. Strychnine is sometimes given, never necessary as a routine remedy, never indicated at a particular day, in all cases, and yet it is not useless in circulatory weakness. The heart and vascular conditions are considered the most important single ones in pneumonia. So-called cardiac stimulants, however, are not always needed, and when they are the ice-bag externally, and hot milk, beef tea, or coffee internally, come into use before medicines. Hypodermoclysis, often used for circulatory weakness, the author does not consider in his paper, though he recognizes the value of the method in introducing water into the body.

As regards external applications, the only routine ones he uses are the ice-bag and coil. In some cases, old people or babies especially, cotton jackets are used instead, but even in young children a light ice-bag, not kept on all the time in all cases, or a cold coil, often seems better than any other treatment yet seen.

The cold bath is invaluable in some cases, but not necessary in all. Blisters are still recommended by some. The author used them very thoroughly under one of the most accomplished masters of that heroic school, putting on fly plasters from 9 x 15 to 12 x 18 inches, sometimes on both sides, and drawing literally quarts of serum. He has put them on soon after the initial chill. He has never observed any shortening of the course or

lessening of the symptoms, and pleurisy and pericarditis were as frequent as under other methods. He has occasionally seen less radical counter-irritation, but with the same negative results.

Two or three years ago it would have been unnecessary to speak of poultices in the treatment of pneumonia. They often relieve symptoms, but can usually be substituted without loss by the cotton jacket. Within a short time the poultice has been revived in a new form under the stimulating influence of printer's ink and an amount of physiologic and therapeutic misinformation that would make Rabelais laugh, but must make all judicious therapeutists grieve.

Oxygen is one of the most important needs for the pneumonia patient, but the compressed variety could often be replaced with advantage by fresh air. Nothing can be more paradoxical than the practice of putting oxygen tanks in the sick-room and turning on a few gallons every half-hour or so, while all the windows are closed, often battened down with cotton, sometimes an oil lamp burning in the room, and not rarely as many people as can find place in it. Open windows, avoiding actual draughts, give much more distinct relief to dyspnea and cyanosis, are indicated on obvious grounds, and should be used. If it seems desirable, the atmospheric kind can be reinforced by pure oxygen, given in an efficient manner, but it is well to ascertain whether the cyanosis, the usual indication for oxygen, cannot be relieved by treating a tympanitic abdomen or a dilated heart.

THE INFLUENCE OF THE FIRST AND SECOND DENTITION PERIODS IN THE ETIOLOGY OF EPILEPSY.

In the course of an article bearing this title in the *Medical News* of December 10, 1904, SPRATLING gives us the following views which bear on treatment. He thinks it is always a mistake to regard the convulsions of dentition, or the convulsions due to any other cause in early life, in any other than a serious light. They are never positively benign—at least we have no right to regard them so. That infants who have convulsions escape serious consequences in the future is always a matter for congratulation; but the phy-

sician should never assume that this is the outcome to be expected. When disease tendencies are so strongly marked as these morbid manifestations so plainly indicate, the most constant care and treatment should be undertaken at once in every case with a view to preventing epilepsy, or idiocy, or insanity, or other states of degeneracy destined to destroy the mental life of the individual in question.

In conclusion, the author's views in the matter may be briefly summarized as follows:

1. Difficult dentition—*i.e.*, the piercing of the gums by the tooth—may, in suitable subjects, constitute a sufficient irritant to cause convulsions.

2. In suitable subjects these convulsions may ultimately lead to epilepsy.

3. By suitable subjects is meant infants who inherit a neuropathic tendency to disease; whose parents have epilepsy, or insanity, or who are alcoholic, or suffer from some other general vice that could be transmitted to the offspring in some form capable of vitiating its powers of resistance to disease.

4. The author does not believe that difficult dentition alone in a child who inherited no ancestral taints, and who at its birth is free from a tendency to nervous disease, can cause epilepsy.

5. Great caution must always be exercised to lay the true cause in cases of this kind where it belongs; for the reason that gastrointestinal disorders, the sequelæ of the eruptive fevers, and other factors common at this age, may produce similar results.

SERUM TREATMENT OF PNEUMONIA.

ANDERS in concluding a paper on this subject in the *Journal of the American Medical Association* of December 10, 1904, reaches the following conclusions:

1. A sufficiently extensive trial of the antipneumococcal sera has been made to determine with a reasonable degree of accuracy their efficiency, and the results, as a whole, fail to carry conviction.

2. An efficient serum, or one that will cut short the pneumonic process, is yet to be produced, although, according to some clinicians, the sera available at present have a restricted field of usefulness.

3. Recent observers have employed the

serum in massive doses from the commencement of the disease without gratifying results.

4. The practical results of the use of antipneumococcus serum, as shown by the very slight reduction in the mortality percentage, does not warrant its general introduction.

5. The sera thus far found possess no antitoxin qualities, and their supposed anti-infectious properties have not been proven.

6. Further investigations into the subject with a view to discovering an efficacious serum are to be strongly advised and encouraged.

INFANTILE MORTALITY: ITS CAUSES AND PREVENTION.

In the course of an article on this subject in the *British Medical Journal* of December 3, 1904, FULTON gives us some practical therapeutic facts. He first speaks of milk sterilization. The term "sterilization" is widely and rather loosely used to signify the heating of milk for the destruction of germs. It, however, should be borne in mind that none of the methods commonly employed render milk sterile in the bacteriological sense of the word, although this can be done by heating on two or three successive days as in preparing culture media—what is accomplished by the means commonly employed is the destruction of such pathological germs as may be present, and a large number of the other bacteria, so as to retard for several days the ordinary fermentative changes. The practice of heating milk used for infant feeding is generally adopted all over the world, but heating changes the taste of milk, makes it constipating, the color is changed, the casein is rendered less coagulable by rennet, and other chemical changes occur which are still imperfectly understood, and it may cause scurvy or scurvy rickets.

Pasteurizing Milk.—To obviate the disadvantages above referred to, the practice has come largely into use in America of employing much lower temperatures for milk sterilization; 150° to 155° F. (65° to 68° C.) are the temperatures which have now the sanction of the highest authorities, although by some 140° F. (60° C.) is deemed adequate. These temperatures are maintained from twenty

to thirty minutes; spores are not destroyed by this method, and such milk requires special handling; after sterilizing, it should always be rapidly cooled. Amongst the poor of the large towns, in summer heating to 212° F. for an hour is to be advised as the most satisfactory—and indeed the only efficient—method of sterilization. It should be remembered that the use of such milk as a sole diet for a long time is attended with a certain amount of risk, and we should always be on the watch for soreness of the legs and the spongy gums that indicate the beginning of scurvy, as well as for the more general symptoms of malnutrition.

Clean Milk.—It is quite possible to produce milk for cities which does not need sterilization. There are special dairies supplying such milk, and their number may be greatly increased if the medical profession will use its influence in that direction. It is toward this end we should work to secure for every town a milk sufficiently clean, pure, and fresh to render heating unnecessary. The author's preference is strongly for such milk, believing, as he does, that the heating of milk, sufficient to kill bacteria, impairs to some extent its nutritive properties, and to a degree directly proportionate to the height of the temperature employed and the length of time it is continued. In the country, where milk is obtained fresh and used before it is twenty-four hours old, sterilization is unnecessary, provided the cows are healthy and the milk is handled with reasonable care, the most important feature of which is that it be quickly and properly cooled as soon as it is drawn.

Peptonized milk is a valuable resource in chronic cases where there is feeble casein digestion, and during an attack of acute indigestion in infancy, and then we should use completely peptonized milk. It is not advisable to continue its use indefinitely, for in this case the stomach gradually becomes less and less able to do its work. It should not be used longer than a month or two at most.

Condensed Milk.—The reasons both for the success and failure of condensed milk as an infant food are apparent from a study of its composition; as it is ordinarily used as a temporary food it is often useful, first because it has been sterilized, but chiefly because the casein of

the cow's milk has been reduced by the usual dilution to such a point (0.6 per cent), and that an infant with a very weak digestion can manage it, whilst it furnishes an abundance of sugar, the easiest thing for an infant to digest. During the first few months of life it is often apparently very successful for these reasons, but it cannot be continued indefinitely without hazard. The author has seen many infants reared exclusively upon it, but rarely one who did not show on careful examination more or less evidence of rickets. Condensed milk fails as a permanent food, partly because it consists too largely of carbohydrates, but chiefly because it is lacking in fat.

Whey is especially valuable for infants in cases of acute indigestion, or in chronic cases where there is much difficulty in the digestion of casein it may be made the basis of a milk modification.

Beef preparations (extracts) are not to be considered in any sense as foods. Kemmericks has shown that animals receiving nothing else died of starvation, and sooner even than when everything was withheld; they are stimulants, and as such are often useful.

Barley, Rice, and Oatmeal Waters.—These are useful as additions to milk for healthy infants who have reached the age of seven or eight months.

Milk Food.—Milk foods, cereal milk, and even some of the farinaceous foods, are advertised as substitutes for breast feeding and recommended for use alone. The use of any commercial foods alone is admissible only for short periods during derangement of digestion, when we wish to withhold for the time all fat and milk proteids. Their prolonged use almost invariably produces some grave disorder of nutrition, most frequently scurvy.

The modification of cow's milk for infant feeding, or the laboratory method—Rotch's American method—is certainly the most scientific, and may be the method of the future; but at present it is expensive. The process now followed of separating and recombining the milk elements impairs its nutritive properties; the mother or nurse cannot use it without the advice and direction of the physician. The milk laboratory is only an instrument or agency in the physician's hands for carrying out his own idea in infant feeding, and the results will be good or bad according to the

use he makes of it. The author is convinced of its scientific value and its practical utility; it is placed by Holt next to maternal nursing. Success in infant feeding is largely a question of close observation and careful attention to details; without these the proportion of failures by any method will be very large.

ROENTGEN RAYS IN THE TREATMENT
OF LEUKEMIA: A STUDY OF
REPORTED CASES.

American Medicine of December 24, 1904, contains an article on this subject which is prepared by Dock. He concludes that under treatment with Roentgen rays some cases of leukemia undergo marked change for the better. The leucocytes fall to normal numbers and sometimes show no more pathological cells, the red blood corpuscles improve, the enlarged spleen and lymphatic glands resume normal proportions, the general health seems restored. In some cases the effects are imperfect.

In no case has observation been carried out long enough to speak of cure. In several cases death has occurred while the symptoms seemed to indicate improvement. The mode of action of the Roentgen rays is not known. It probably consists in affecting the tissues that produce the pathologic leucocytes, either directly or more probably through the production or setting free of substances that affect cell formation, or degeneration, or chemotaxis, or all of these processes; but further investigation is necessary. At present the improvement must be considered functional and not affecting the original cause, nor in a permanent way the morbid histology of the disease. The improvement of the red blood cells may be due to general stimulation of nutrition, in which suggestion may have a part, or by diminution of lymphoid or myeloid tissue, and thus permitting development of red cells, as suggested by Ahrens.

Though the change seems a functional one, it is possible that treatment in the very early stages may be more effective than it has hitherto been.

Roentgen ray treatment of leukemia is dangerous on account of the usual risk of dermatitis and burns, but probably also on account of toxic processes as yet impossible to explain. No stronger claims can be

made for it than can be made for arsenic and certain serums and bacterial toxic substances, but it may prove more certain in its action than arsenic, and can be more readily applied in practice than the injection methods. Careful observation and recording of all cases in which the treatment was followed promise advances in our knowledge of leukemia, with the possibility of gains in practical therapeutics.

No special rules can be laid down at present for treatment with Roentgen rays. Great care should be taken to avoid burns. Methods should be as fully described as possible in each case; the blood should be carefully examined as fully and as frequently as possible, and if possible urine examinations should be made, to throw additional light upon the metabolic changes.

THE TREATMENT OF RENAL CALCULUS.

In the *Therapie des Gegenwart* for 1904 KLEMPERER states that by appropriate diet the composition of the urine may be so modified as to prevent the deposition of any crystalline substances, and therefore the prophylactic dietetic treatment of renal calculus is sufficient for the purpose, without the aid of medicinal treatment. At the same time the author admits that, in many instances, certain medicinal adjuvants may be advantageously resorted to, especially with patients who tolerate dietetic restrictions with difficulty. It is obvious that the composition of the calculus will determine the character of both dietetic and medicinal treatment.

Uric Acid Calculus.—Free uric acid is very slightly soluble in water, whilst in basic combination it is comparatively easily soluble. Although it is impossible to increase the solubility of the free acid, it lies within our power to diminish the percentage of free acid by causing a large proportion of it to appear in the urine in the combined state. This is accomplished by lessening the quantity of animal food and at the same time largely increasing the quantity of vegetable food; the administration of alkaline salts, especially in the form of appropriate mineral waters, is also of great assistance. Analytical methods and results are given which demonstrate the efficacy of the treatment. For example, the urine of a patient who had had many attacks of gout was, by

means of limited fresh diet with abundance of vegetables and Fachingen water, made to have all its uric acid combined with bases, thereby replacing a considerable amount of the free acid. The mineral waters which contain sodium carbonate and carbonic acid, such as Fachingen, Vichy, and the like, are specially adapted to this end, although sodium bicarbonate itself may be given instead. Von Noorden recommends calcium carbonate in the place of the sodium salt, but Klemperer doubts the alleged advantage. The solvent properties of piperazin and formaldehyde (urotropin) are then discussed, but they are held to be of doubtful utility.

Calcium Oxalate Calculus.—The indications are to increase the amount of acid sodium phosphate and of magnesia in the urine. Both these indications are fulfilled by a liberal allowance of animal food; the amount of magnesia may be further increased by the administration of magnesium sulphate in half-drachm doses daily. By increasing the quantity of magnesia excreted by the kidneys in proportion to the quantity of calcium, the oxalates appear in a much more soluble form than when the alkaline salt predominates. Alkaline mineral waters, though of less importance than in the case of uric acid calculi, are held by Klemperer to be of service.

Phosphatic Calculi.—This form of renal calculus is not so easily directly combated by diet and medicaments because the primary deposition of phosphates in the urine is frequently associated with an abnormal condition of the nervous system, toward which treatment requires to be directed. The alkalinity of the urine may possibly be influenced by the administration of dilute sulphuric acid, and still better by phosphoric acid. The drinking of waters which hold much CO_2 in solution is serviceable.

Klemperer then goes on to discuss the possibility of dissolving calculi which have been already deposited in the kidneys; he holds that it is quite possible to diminish to some extent the size of a renal calculus, but he doubts its entire solution. He warns against excessive alkalization of the urine, with the object of dissolving a uric acid calculus, lest phosphates be deposited on the calculus, which is thus increased in place of being diminished in size.—*Medical Chronicle*, November, 1904.

PROPHYLACTIC USE OF QUININE.

WENDLAND (*Arch. f. Schiffs und Prop. Hy.*, Band viii, Heft 10) has received reports from 41 Europeans in New Guinea who have taken quinine for the prevention of malaria. Many of them took quinine only at irregular intervals in inadequate doses, and received no benefit. The chief methods of administering quinine for purposes of prophylaxis are: (1) Koch's method of 1 gramme of quinine on each of two consecutive days at intervals of ten days; (2) Plehn's method of 0.5 gramme given every fifth or every fourth day; (3) 1 gramme given once a week, or two doses of 0.5 gramme given on two consecutive days once a week, and four doses of 0.1 to 0.25 gramme given every day. The last method is not customary in New Guinea, and no examples of it are given. Only four people followed Plehn's method, and no definite conclusion as to it could be arrived at. Two out of the four had each an undoubted attack of malaria while under treatment, one described a probable attack, and the fourth (who remained free from fever) had only taken quinine for seven weeks. One gramme of quinine given once a week, or 0.5 gramme twice a week, does not protect from malaria. The author himself on his first arrival in Kaiser Wilhelmsland had two attacks of malarial fever within two months in spite of taking regularly 1 gramme of quinine every week. One person who took the double dose of 0.5 gramme had remained well for a year.

Eight out of the 41 persons followed Koch's method: two had no attacks while taking quinine, one for ten months, another for four months, and a third had one slight attack only in fifteen months; a fourth remained well for four months, but then discontinued the use of quinine, and promptly sickened with malaria. Two unsuccessful cases are explained by the fact that the patients stopped taking quinine at intervals, by way of experiment; another because during an attack of malaria an insufficient amount of quinine was taken, and the patient therefore suffered from relapses, and a fourth from a combination of the two causes. The author himself treated by Koch's method seven natives who came from malaria-free districts, and sickened as soon as they were within

reach of infection; all of them remained free from malaria while taking quinine. In applying the method, Wendland would give the quinine every eighth and ninth days, or every ninth and tenth days after consideration of the individual case. None of the patients who followed Koch's instructions suffered from blackwater fever; indeed, the 9 out of the 41 who were attacked by hemoglobinuria had all taken doses of quinine too small to protect them from malaria. The older residents in the tropics appeared to have become more sensitive to the side effects of quinine in small doses. In one case 1 gramme of quinine gave rise to a tremor of the hands, which interfered with the patient's work, in another to diarrhea-like stools, and in another to bladder symptoms. The author gives the quinine, as a rule, at about five o'clock in the evening, an hour before a meal—that is, when the stomach is empty. He does not believe that the prophylactic use of quinine can be made compulsory, but recommends that a course of instruction on the subject should be given to officials before they come to the tropics. His conclusions as to Koch's method of administration are: (1) That by it the most effective protection against malaria can be obtained; (2) that it has no injurious effect upon an otherwise sound organism; and (3) that it will greatly contribute to diminishing the prevalence of blackwater fever.—*British Medical Journal*, Dec. 3, 1904.

EPIDURAL INJECTIONS IN THE TREATMENT OF INCONTINENCE OF URINE.

Hallin having showed that a local anesthetic when injected subdurally acts not upon the spinal cord, but upon the nerve roots of the cauda equina, Cathelin has attempted to find a method by which he could reach the cauda equina without touching the cord. He performed a number of experiments upon dogs, and came to the conclusion that the lower opening of the sacral canal constituted the most convenient site of entrance into the canal. He injected colored fluids at this point, and after death found traces of the pigment covering the surface of the sheath of the cord as high up as the cervical region, whilst none had entered the dural sac. This showed that he had reached the epidural space without penetrating the mem-

branes or running the risk of wounding the cord. He thereupon attempted to produce analgesia by injecting solutions of cocaine into the sacral canal of human subjects. To his surprise the result was not analgesia, but retention of urine. In collaboration with Albarran, he then applied his method of injection to the treatment of conditions of abnormal frequency of micturition, and published a monograph upon the whole subject in 1901. The method was soon employed by other French and a few German observers. The results invariably appear to be eminently encouraging. A certain number of cases have been permanently cured, some as the result of a single injection, and considerable improvement is reported in many others. Cathelin at first used cocaine, but later substituted normal saline solutions. Strauss uses Schleich's No. 2 solution with the morphine omitted, because he has found that this solution causes less local tenderness. Like Kapsammer and Cathelin himself, he has come to the conclusion that no marked difference exists in the action of the various solutions used.

The injections may be made with an ordinary syringe bearing a needle of a length of from $1\frac{1}{2}$ inches in the case of children, or 2-3 inches for adults. A quantity of from $1\frac{1}{2}$ to $5\frac{1}{2}$ drachms of sterilized normal saline solution may be injected at each sitting; or in obstinate cases as much as 10 or 11 drachms may be necessary. It is advisable to make two or three injections at short intervals even when the cure appears complete after the first; in this way relapses are avoided. In making the injections the patient may be in a standing position, but is best laid on his side with the thighs flexed, so that the sacrum is made prominent. The membrane closing the lower end of the sacral canal has now to be looked for. The landmarks of the operation are constituted by the sacral cornua—i.e., the posterior and inferior processes of the last sacral vertebra. These are readily found in a child or thin subject, and without great difficulty in a fat person. Between these, at the posterior termination of the intergluteal fossa, a small triangular depression is seen. The needle is inserted at this point and thrust forward and upward into the sacral canal. The operation is technically easy and free from all pain save a slight degree of local tenderness. An anesthetic is not required,

and the injection may safely be performed upon out-patients, who are able in a few hours to follow their usual occupations. Provided that the ordinary precautions of surgical cleanliness are adopted the operation is free from all danger; of the thousands of cases in which it has been performed no noteworthy instances of untoward results have been recorded.

We possess no real knowledge as to the rationale of this method, but it has been suggested by Cathelin and others that the injections owe their effect to an irritation of the nerve-roots of the cauda equina. The irritation spreads to the medullary centers of the spinal cord, and sets up in these a reflex excitation of the molecular elements which produces inhibitory changes in their functional activities. In consequence of this the tonus of the previously insufficiently enervated sphincter is stimulated and the latter enabled to functionate more actively.

Whatever may be the true explanation, the sound practical results which have been obtained seem to show that we possess in this method a genuine addition to the varieties of treatment at present adopted in cases of enuresis. The method has up to the present attracted little or no attention in this country, and it appears to be worthy of an extended trial. Its chief use lies in the treatment of the enuresis of children, but it has also been successfully employed in the incontinence of urine without mechanical cause in adults, in spermatorrhea, neurotic polyuria, and other similar lesions of the genito-urinary system. [We cannot recommend this plan.—ED.]—*British Journal of Children's Diseases*, December, 1904.

SCARLET FEVER AND SOME OF ITS THERAPEUTIC POSSIBILITIES.

SEIBERT states in the *New York Medical Journal* of December 17, 1904, that the important findings of Jochmann prove that the scarlatinal organism lodges in the throat, in some lymph nodes, and in the skin of the patient for days, even in severe cases, before it enters the blood to kill the patient. In fact, the life danger in this disease appears to rest in the possibility of streptococci entering the blood in large numbers from the invaded throat and skin.

If this is true, can we destroy strep-

tococci in the scarlatinal throat and skin before they can enter the blood? This, the author believes, we can do.

During the last ten years he has used inunctions with 5 per cent and 10 per cent ichthyol lanolin ointment twice or four times daily into the entire skin in every case of scarlet fever. Swelling and itching were thereby diminished, and later on the almost entire absence of desquamation, even in severe cases, proved that the inflammation of the skin had been actually reduced. The ointment must be rubbed well into the skin.

Ill effects from such inunctions have never been noticed by any one in New York. A Dr. Kraus, of Prague, Bohemia, who reported adversely on three cases of scarlet fever in which he used ichthyol ointment (*Prager med. Wochenschrift*, Dec. 27, 1900), did not use lanolin but vaselin as a vehicle, and therefore his observations have no value.

Furthermore, these inunctions aid in preventing contagion, for in numerous cases treated in families with three to seven children living in small flats, no further cases developed after the first one had been treated in this manner. That ichthyol is a germicide for streptococci has been shown in a series of experiments in the Hygienic Institute at Greifswald by Abel in 1893. So far only streptococci have been found in the scales and the blood of scarlatinal patients.

The most dreaded complication of scarlet fever is streptococcic pharyngitis. After trying bland solutions for irrigating the nasopharynx, injections of chlorine water, and also ichthyol solutions, without decided effect, the author began about four years ago to disinfect the nasopharynx and pharynx with a 50-per-cent resorcin-alcohol solution as soon as exudate began to show itself in the throat.

The patient is placed upright on the lap of the nurse as when intubation is performed, the wrists are held down, and the head is held firmly by a second attendant standing behind. A plug of absorbent cotton, wound around a curved applicator and dipped into this solution, is quickly introduced over the handle of a tablespoon into the nasopharynx on one side of the uvula, left there a few seconds, and then withdrawn. A second application is made on the other side. No swabbing or wiping

away of exudate is resorted to, for on the introduction of the cotton the soft palate instantly contracts and so presses the fluid into every nook and corner of the throat. The solution penetrates through the exudate and deep into the affected mucosa, and there destroys the life of every streptococcus (or any other germ) it comes in contact with.

That all of the visible surface of the throat has been flooded by this solution can be seen by a milky appearance of the surfaces. Where this is wanting, a third and fourth application should be made instantly.

These applications should be made once daily in early and mild cases of scarlatinal sore throat, twice daily in more advanced cases, and every two to four hours in far advanced cases, where they can then yet save the patient in some instances.

This energetic treatment is absolutely harmless to the patient, for it can be employed in infants as well as in adults. As a rule, a reduction of the swelling of the adjoining lymph nodes is noticeable within a few hours after the first application. The treatment must be continued until the throat is free from exudate and the lymph-nodular swelling has disappeared.

Wherever the presence of true diphtheria is even suspected, the author of course uses serum at the very beginning of each case.

In the most dangerous cases of scarlatinal sore throat the Loeffler bacilli are not present, and for want of an effective streptococcus serum this local destruction of pathogenic organisms at the very source of supply has given the author, and others who have tried it, considerable satisfaction.

INDIAN HEMP AND INSANITY.

The important and valuable paper published in the *Indian Medical Gazette* for November, 1904, from the pen of Captain G. F. W. Ewens, I.M.S., M.D., the superintendent of the Central Lunatic Asylum, Lahore, raises again the question which ten years ago was very much debated among medical men in India.

As a result of his experience while in charge of the large asylum at Lahore, Captain Ewens is of the opinion (1) that there is a form of mental disease which

seems to have a direct relation to the excessive use of hemp, as "a definite effect following a definite cause;" (2) it has a "definite train of symptoms of a fairly regular character."

Some of our readers will remember the report of the Indian Hemp Drugs Commission.

The seven large volumes in which the work of this Commission is recorded contain practically all that is known on the subject of the hemp drugs.

To medical men a most interesting part of this report was the analysis of the evidence on which the asylum statistics connecting insanity with the use or abuse of hemp drugs was founded. It will be admitted that these asylum statistics were proved to be utterly unreliable, as the majority of superintendents confessed that they accepted the statements as to causation given on the descriptive rolls sent with the lunatics. That these entries, made by some police subordinate, were frequently quite misleading and quite unreliable will hardly be gainsaid. The Commission, therefore, rejected the evidence of the recorded statistics and examined for themselves the papers of 222 cases attributed to the use of these drugs. These 222 cases were out of a total of 1344 lunatics admitted to all asylums in India in the year 1892, and of these 222 the Commission could only accept 98 cases (or 7.3 per cent of all lunatics admitted that year) "in which hemp drugs may be reasonably regarded as a factor in causing insanity."

As regards a special form of mania, the only point which could be established by the evidence before the Commission was the shorter duration of cases attributed to this drug as a cause. The Commission (Report, vol. i, p. 249) wrote as follows: "Summing up the evidence as to the presence of pathognomonic symptoms, in cases of hemp drug insanity, the Commission consider that, with the exception perhaps of the shorter duration of such cases when compared with cases of ordinary mania, there are no symptoms by which the cause of the mental condition can be determined. The determination of cause depends wholly upon history."

The Commission (page 263, vol. i) also sum up their conclusions regarding the effects attributed to hemp drugs. We may briefly mention some of them here:

1. It has been clearly established that

the occasional use of hemp, in moderate doses, may be beneficial, but such use is only medicinal in character.

2. The moderate use of hemp drugs is practically attended by no evil physical effects.

3. The excessive use does cause injury, tends to weaken the constitution and render the consumer more susceptible to disease, possibly dysentery and bronchitis.

4. As to the alleged mental effects, moderate use produces no injurious effects on the mind, except in cases of marked neurotic diathesis.

5. It is otherwise with excessive use. "Excessive use indicates and intensifies mental instability. It tends to weaken the mind. It may even lead to insanity, especially in cases where there is any weakness or hereditary predisposition."

The subject has also been ably discussed by Lieutenant-Colonel J. H. Tull Walsh, I.M.S., in a paper published in the *Journal of Mental Science*, January, 1894. He formulates the following conclusions:

"1. That hemp drugs are very largely used in Bengal, smoked as ganja, or charas, drunk as bhang or siddhi, or eaten as majun. The smoking of charas and the eating of majun are not very common.

"2. Among healthy persons ganja smoked alone, with tobacco or with a very small addition of datura (two or three seeds) produces a condition varying from mild exhilaration to marked intoxication. The violent intoxicant effects are less marked, or not seen at all, in persons having a regular and wholesome supply of food. Much the same may be said of bhang.

"3. Among persons of weak mind, or with a marked neurotic tendency, even a moderate quantity or only a slight excess of hemp drugs may so increase the insanity, evident or latent, as to make such persons violent, morose, or melancholy, according to the neuropathy with which we start. The presence of adulterations, such as datura, will increase these effects.

"4. Abuse of hemp drugs, especially when adulterated with datura, will produce even in healthy persons a very violent intoxication simulating mania, or may lead to a morose, melancholic condition, or to dementia. These conditions are generally of short duration and the patient ultimately recovers. So common is absolute recovery that the author thinks when

a patient confined in an asylum for the treatment of insanity said to be due to an abuse of hemp drugs does not recover within ten months these drugs were possibly only the exciting cause, and that we are dealing with an individual who was either insane previous to his use of intoxicating drugs, or with one in whom latent insanity has been aroused into activity by the vitiating effects of excess of ganja, bhang, etc."

THERAPEUTICAL SUGGESTIONS AS TO SCARLET FEVER, WITH SPECIAL REFERENCE TO THE HEART AND OTHER COMPLICATIONS.

FISCHER, in the *New York Medical Journal* of December 17, 1904, says, first and foremost, put every scarlet fever patient in bed and keep him there at least four weeks. The temperature of the room should be between 68° and 70°. Ventilate frequently. It is safer to protect the body with sweet oil, lanolin, or carbolized vaselin.

Second, the temperature is no guide as to the time when a child should be permitted to leave the bed.

Third, the heart and the pulse should be the true determining guide as to the progress and the condition of the patient.

Fourth, the diet should be liquid, and should consist principally of milk and alkaline waters.

Fifth, stimulate the emunctories, as we know that we can eliminate toxins through the kidneys, bowels, and skin.

Sixth, a hot saline colon flushing, one or two quarts, at a temperature of 115° to 120° F., should be given once a day after the first week, regardless of its necessity. It will stimulate diuresis, also cleanse the bowel and nourish the blood.

The following drugs are preferred by the author during scarlet fever: Antipyretics, none; avoid them, owing to their depressing the heart's action. Sulphocarbolate of sodium, 5 to 20 grains, three or four times a day; for the kidneys hot salines and diuretics liberally; for the heart sparteine, strophanthus, and 5 to 20 drops of a 1-to-5000 solution of adrenalin. This last named drug has a very stimulating effect on the heart's action; besides, it does not irritate the gastric mucosa, nor has it a cumulative effect. If the pulse is watched we can frequently reduce a rapid pulse-rate and steady the heart's action by the

author's own experience has convinced him of the value of very large doses of strychnine in tiding a heart through the crisis. For the same purpose we may also resort to the hypodermic injection of camphor in sweet almond oil. Many observers also report good results from hypodermoclysis and enemata of salt water. Elsner has recently called attention to the value of adrenalin for the same purpose (15 minims of the 1:1000 solution by mouth or subcutaneously). A struggling heart is often aided by an ice-bag over the precordium. The author would direct particular attention to the newer views as to the importance of the vasomotor paralysis, since the rationale of the ergot plan of treatment finds much support. He also again emphasizes the need of greater caution in the use of nitroglycerin, which has been very indiscriminately used, especially in this country.

HEPATOPTOSIS COMPLICATED BY GASTROPTOSIS: A SUGGESTION AS TO TREATMENT.

In the *Medical News* of November 12, 1904, ELIOT tells us that the treatment is prophylactic and curative.

Prophylactic treatment includes all measures calculated to maintain the tonicity of both the abdominal wall and the abdominal viscera. Among the most important may be mentioned regular and suitable exercise, careful attention to the functions of digestion and assimilation, and in general the observing of a well-regulated hygienic habit of life. In women especially, where the persistence of weakness of the visceral ligaments after pregnancy is a part of a general subinvolution, should these precautions be observed.

The curative treatment is both medical and surgical. Medical treatment consists in the application of the general principles just enumerated together with local treatment directed to the displaced viscus. In case of displacement of the stomach, lavage, electricity, with small doses of strychnine and arsenic to improve the tone of its muscle wall, are most likely to prove of service when that organ only is involved, and when the liver maintains its proper relation to the diaphragm. Similarly with the kidney, the generous exhibition of fats both in diet and by the administration of cod-liver oil may afford

relief by increasing the general strength, as well as the strength of the fatty capsule of the affected organ. Again, however, the chances of a permanent cure are slight, if displacement of the liver exist, for the upper pole of the right kidney (the one usually affected) is in contact with the under surface of the liver, and any movement downward of that viscus must necessarily be transmitted to the kidney beneath. The descent of the kidney in these subjects may occasionally be checked by the wearing of a well-fitting pad.

In all these cases, particularly when nervous symptoms develop, general benefit is derived by continued rest in bed. By this means gravity as an etiological factor is eliminated, or may be even utilized to effect the return of the displaced organ to its proper position by raising the foot of the bed. This is especially true of the solid viscera. With the recovery of the patient recurrence is less likely if some occupation is selected that does not necessitate continued and protracted standing in the same position.

The surgical treatment varies according to the organ affected. The object of this paper is to call attention to a new method of operation in those cases where, with gastroptosis, there is a descent of the liver as well. Hitherto, with or without this complication, attempts have been made to relieve the gastroptosis by suture of the stomach to the anterior parietal peritoneum, and in a few cases by a reefing or shortening of the gastrohepatic omentum—attempts that have resulted in no material benefit to the patient. The chief objection to either of these methods seems to be that, when the liver descends, the weight of that organ continues to be exerted against the stomach and thereby interferes with its function as well as the function of the other viscera that are pressed down into the abdominal cavity. The object of the operation suggested is to anchor the liver so securely in its position that the displaced stomach and other abdominal viscera will be relieved of its superincumbent weight, and will then with or without general therapeutic measures return more or less completely to their normal position, with a corresponding improvement in their function.

The operation consists in the exposure of the liver and stomach through a median incision above the umbilicus. The oblit-

erated umbilical vein, forming a thick cord in the free edge of the falciform ligament, is then identified and drawn forward until it comes in contact with the parietal peritoneum. The hepatic extremity of the ligament then rests against the under surface of the right lobe of the liver in front of the transverse fissure. The lower or umbilical extremity is in close contact with the anterior parietal peritoneum, the two portions of the ligament now forming a right angle. In this position the sound ligament is sutured to the anterior parietal peritoneum with chromicized gut, and the redundant falciform peritoneal reflection is spread out laterally and sutured to the contiguous portion of the parietal peritoneum with the same material, in this way forming a species of shelf for the under surface of the liver. The abdominal wound is then closed in layers.

ETHER AND CHLOROFORM AS ANESTHETICS.

The *New York Medical Journal* of December 31, 1904, says that though the superiority of ether to chloroform as an anesthetic, on the score of safety, has again and again been overwhelmingly proved, there can be nothing but advantage in weighing every well founded contribution to our knowledge of the multitude of details bearing upon the relative manageability of the two drugs. Clinical tests must, of course, be accepted as decisive, but laboratory experiments must at the same time be allowed their due weight—not that they should be permitted to override the plain showings of clinical experience, but that they cast side-lights, the recognition of which is indispensable to that complete comprehension of the subject to which we hope ultimately to attain. A learned French writer, M. Jaquet, of the faculty of Basle, has lately (*Semaine Médicale*, Dec. 7) made an illuminating digest of the principal recent experimental data pertaining to the matter. They relate to the action of the two drugs on nervous tissue, both central and peripheral, to their comparative effect on the respiration and on the circulation (the most striking purport of which is to throw doubt on the Hyderabad Commission's inference that the stoppage of the heart as a result of poisoning with either anesthetic is the result of the preceding arrest of the respi-

ration), to the degree of concentration of the anesthetic vapor as affecting the dangerousness of its action, to the effects of the two agents on the blood-pressure, and to the part played by prolonged and repeated anesthetization.

We cannot undertake to give even a summary of all the data bearing on these various points, but we may present M. Jaquet's conclusions. Ether and chloroform, he says, are identical as regards the way in which they produce anesthesia, but they exert distinct secondary actions which play an important part in determining their comparative safety. Chloroform decidedly depresses the heart as well as the breathing, and lowers the blood-pressure. Ether, on the other hand, does not give rise to these effects unless the toxic dose is reached. Nerve tissue exposed to contact with comparatively dilute chloroform vapor is killed, while ether vapor produces only a transitory functional inactivity. The range of manageability is much greater with ether than with chloroform. Prolonged anesthesia from ether is better borne than that from chloroform. Chloroform causes parenchymatous degeneration of all the organs, and such degeneration affecting an organ already enfeebled may result in death; ether produces no appreciable histological lesions. The pulmonary troubles that sometimes follow anesthetization with ether are the fault of him who administers the drug rather than of the drug itself. The growing favor with which ether is regarded as a surgical anesthetic is justified; it is less dangerous than chloroform.

SOME OBSERVATIONS ON HEMOPTYSIS.

In the *Cleveland Medical Journal* for December, 1904, FITZGERALD advises that when the hemorrhage has been profuse, and the patient is exsanguinated, normal saline solution by hypodermoclysis may be indicated. It must be given with caution, since blood-pressure may be raised to a dangerous level. Small amounts, repeated as required, are safer than one large injection. That the pulse is soft and the blood-pressure is low is beneficial rather than otherwise, since the greatest danger lies in a too high rather than a too low blood-pressure.

The best treatment of hemoptysis requires: (1) Absolute physical rest; (2)

mental quiet and relief from fear and anxiety; (3) morphine and atropine in sufficient dosage to insure both the preceding; (4) control of cough, fever, and pleuritic pain and careful attention to diet; (5) suggestive measures, as ice-caps over the heart, salt and cracked ice by mouth, etc.; (6) free use of bromides and nerve sedatives in the nervous; (7) nitrites or veratrum when high blood-pressure persists; (8) care in not overdugging or in placing reliance on specifics, as ergot or adrenalin; (9) hypodermoclysis with normal saline when indicated.

CHRONIC NEPHRITIS—SURGICAL TREATMENT.

When to operate for chronic nephritis is the subject discussed by STERN in the *Centralblatt für die Harn und Sexualorgane* (Bd. xv, No. 1, 1904). He quotes Israel, who advises operative interference in cases of angioneurotic hemorrhage from the kidneys. The main symptoms in these cases are hematuria and attacks of pain. In one of his cases the patient had unilateral hematuria, but no other symptoms; there was no pain and no casts; a tumor or tuberculosis was supposed to be present, but on incising the kidney interstitial nephritis was the only lesion found. There was no further hemorrhage, and even after the lapse of six months the urine was free of albumin and blood. In a girl of twenty years of age there was hemorrhage from both kidneys, but as this patient did not seem influenced markedly by her state, he believed her condition to be purely angioneurotic, her kidneys being perfectly healthy.

Harrison operates for acute nephritis with increasing amounts of albumin, oliguria due to congestion, and combinations of heart and kidney disease. He advises nephrotomy, believing that cure is due to the removal of pressure after the incision of the capsule. If the disease is bilateral, but one kidney need be operated upon, as the other recovers reflexly.

In a patient with absolute anuria lasting six days, Stern performed a nephrotomy of the right kidney. After several hours there was a profuse flow of urine from this kidney. He sutured the kidney on the second day, the anuria returned, and the patient died. Autopsy

revealed parenchymatous nephritis of both kidneys. In a third patient with marked albuminuria, hydrops, and oliguria, a unilateral nephrotomy was performed. After nine months the patient showed only a trace of albumin, all other symptoms having disappeared.

In two other patients the outcome was not so fortunate. One died of secondary hemorrhage, having torn off his dressings, after showing some signs of improvement; and in the second the albumin fell from 8 parts to 1 part in 1000, but the condition recurred. The patient refused decapsulation, and died. He has operated twice in nephritis without edema, and with the best of results. Stern considers the results obtained so far sufficiently favorable to warrant more frequent operation for nephritis. In grave cases with edema and anuria he advises nephrotomy as the best measure. In edema with oliguria, capsulotomy, with kidney puncture, or probably removal of both capsules, may be sufficient. The latter method promises well in cases of albuminuria with slight edema, or without it.

LICHEN PLANUS VERRUCOSUS—TREATMENT.

In a short time a series of four cases of lichen planus verrucosus has come under the observation of RAVOGLI (*Journal of Cutaneous Diseases*, December, 1904), leading him to make a clinical and pathological study of the complaint.

Proper treatment, of course, depends upon a satisfactory recognition of the disease. Every one of the four patients—three men and one woman between forty and sixty years—had suffered attacks of lichen planus for years. The lichen had come and disappeared, and had left the skin of the legs hard, thick, pigmented, and uncomfortably itchy. On the legs they had noticed papules somewhat larger than in other parts of the body, of the size of the head of a nail. They had often scratched the top of the papules, which had bled, and the blood had formed dark-brown crusts. These lesions have gradually shown a growth, becoming thickened and extended. Several coalesced, forming characteristic patches of lichen planus verrucosus. In the woman the lesions were most developed on the right leg; large patches, thick and hard, elevated

above the normal skin, somewhat edematous, covered the external malleolar region. In one of the male patients the lesions were distributed in the form of a long stripe in the peroneal region of both legs. In another patient the eruption of large lichen papules was limited to the middle and to the lower third of the left leg, while in the other they occupied the internal surface of the whole leg.

In nearly all the cases there was a marked gouty condition.

In the treatment, the general treatment of lichen planus is continued. Subcutaneous injections with 10-per-cent solution of cacodylic acid, repeated three times a week, have been beneficial to the general condition. The lesions, however, must be treated locally. Any remedy which acts upon the epidermis, producing superficial necrosis, and at the same time capable of reducing the hypertrophy of the connective tissues, is a remedy adapted to the case. In one case a good result was obtained from a 10-per-cent solution of chrysarobin in traumaticin. In two cases complete disappearance of the lesions was gained by touching them with formalin in full strength. In the last case exposure to the x-rays caused the disappearance of the hypertrophied papules.

Excision does not appear satisfactory. When a papule has been excised there has been a recurrence.

The action of the remedies named has been helped by local application of 5-per-cent ichthyol salve.

One patient seen afterward showed only superficial scars where the lesions had been, and a somewhat roughened epidermis.

THE EXPANSION OF THE LUNG AFTER SCHEDE'S OPERATION.

C. HOFMANN (*Münch. med. Woch.*, li, 2085) points out that the expansion of the lungs is caused by their own elasticity, which will manifest itself unless the pressure in the pleural cavity is too strong, and this will only be the case if the opening in the chest wall is larger than the lumen of the bronchus. An opening smaller than the bronchus is not sufficient for drainage at first, and therein lies the fault of Bullau's apparatus. The author therefore uses the following method: After free resection the pleural cavity is cleaned and dried as thoroughly as pos-

sible, and a thick dressing applied, which, although absorbent, will when wet transmit air with difficulty. The outer layers only of this are changed until three to five days after operation, when the lung has expanded and formed adhesions to the lateral pleura. A small rubber drain is then inserted and left as long as necessary.

CIRCUMRECTAL INFECTION—TREATMENT.

JELKS (*New York and Philadelphia Medical Journal*, Dec. 10, 1904) has a method of dealing with circumrectal infections which may have something to do with the excellent results attained.

The chief fault in the treatment of these abscesses is that in the incision and drainage of them their walls are not gotten rid of, hence nature is unable to throw off this barrier to general infection, as when the abscesses are located in some other part of the body. In many cases the walls become calloused, and all efforts to establish granulations are futile. As it is necessary to get rid of this structure, there is no instrument more serviceable for this purpose than the sharp irrigating uterine curette. In the employment of it general anesthesia is required, unless the abscesses are small and superficial. In the latter case local anesthesia may be utilized.

When fluctuation is accomplished, without poulticing if possible, opening is done freely, down to the bottom of the abscess, parallel with the rectum and usually transverse to the folds. The incision is made wide. Irrigation is now made with a formalin solution, through the irrigating curette, until the fluid comes away clear. By fearlessly cutting away the abscess walls the cavity is converted into a surgical wound. The rectum is thoroughly dilated and washed clean with formalin solution, any ulcers are cauterized, and hemorrhoids are removed. The cavity is then packed with iodoform gauze.

On the second day after operation a weak solution of formalin is used, and every day thereafter, in irrigating the cavities.

The cavity is packed after the second day with gauze saturated in balsam of Peru, castor oil, and ichthyol.

Suppuration has occurred but seldom when the formalin solution has been em-

ployed in irrigating. Carbolic acid added to the solution prevents in a great measure the painful effect of the formalin.

Should large cavities remain unfilled after repeated curetting, these cavities may be closed with twenty-day catgut.

The technique of this operation is described by Jelks, who employed it in the case of a patient with one cavity remaining, and with both sphincters severed, which caused fecal incontinence.

The rectum and sigmoid flexure were thoroughly irrigated with formalin solution, and a small tampon of gauze was inserted into the rectum. Then saline irrigation was substituted, while the wall of the cavity was dissected out and the incised edges of the gut were freshened. This left, laterally, fat only, so the author stitched anteroposteriorly with twenty-day catgut from the apex to the base of the cavity, entirely closing it and the rent in the rectum and internal sphincter. Finally, the external sphincter and skin were sutured.

The results of this operation were that this immense cavity, which would admit a goose egg, was permanently closed, and with it the internal sphincter. The external muscle and the scar tissue constituting the tunic did not fare so well, for on the seventh day the rectum was emptied with an oil enema, and the external sutures became infected. In order to conserve the deeper work the external sutures were removed.

After the wound had healed the author again united the ends of the external sphincter, by the following method: The tissue was dissected back from the anal margin, the muscle dissected out of a bed of scar tissue, and each end transfixed with twenty-day catgut, after which these double sutures were tied together and the tissues were sutured over the muscle. The result of this operation on the external muscles was more satisfactory, although, as in the preceding operation, there was some breaking down of the scarred skin.

The man is entirely well and carries his maximum weight. He was dismissed with instructions to return if, after a month or two, the cold water douching did not restore sufficiently the tonicity of the muscle, which by stimulation was made to contract firmly, although at other

times inclined to be less sensitive than it should be, being in a state of atonic relaxation.

FULMINANT CARIES ALVEOLARIS SPECIFICA.

ARKOVY (*British Medical Journal*, Nov. 19, 1904) under the above title writes upon an acute alveolar inflammation commonly characterized as "pyorrhea," the term specific implying not that it is of syphilitic nature, but that it is associated with true caries. The affection in its chronic form is of course well known, but that it may appear suddenly, with pain, often severe constitutional symptoms, and the formation of multiple extra-alveolar abscesses, is not so well recognized.

The treatment is much like that appropriate to a chronic pyorrhea. The tartar deposits are removed from the roots. Stimulating, even cauterizing, applications are employed, such as hydrogen peroxide or aromatic sulphuric acid, and since the severe pain is due to gangrene of the pulp, opening into the pulp cavity is indicated.

The teeth usually regain their former firmness if treatment is prompt. These fulminant attacks only occur in cases of chronic pyorrhea; the abscesses communicate with the interalveolar septa, which are necrosed. The pain is usually agonizing in intensity and obstinately persistent, and there is an associated diffuse gingivitis.

RENAL INCISIONS—HYRTL'S EXSANGUINATED RENAL ZONE.

An investigation has been conducted by ROBINSON (*New York and Philadelphia Medical Journal*, Dec. 10, 1904) to locate the line of exploratory incision through the renal parenchyma to the calyces and pelvis, which produces minimum hemorrhage and maximum preservation of structures. As a result he announces that the elective line of exploratory incision with a minimum hemorrhage is the zone discovered by Hyrtl in 1869.

To attack surgically the ureteral calyces and ureteral pelvis with the scalpel, the renal cortical incision should be made at the junction of the periphery of the dorsal and ventral renal arterial segments—i.e., one-half inch dorsal to the

lateral longitudinal renal border. A knowledge of this zone may, under certain renal conditions, as trauma, hemorrhage, etc., enable the surgeon to preserve the dorsal or ventral parenchymatous segment by ligation of the ramus renalis dorsalis or ramus renalis ventralis.

In actual practice it is found that if the kidney is incised one-half inch to the dorsal side of the longitudinal lateral renal border the hemorrhage is less than in any other possible incision. The renal incision should be executed in the middle of the kidney, not at the poles.

PROSTATECTOMY BY THE PERINEAL ROUTE.

A brief description is given by GOODFELLOW (*Journal of the American Medical Association*, Nov. 12, 1904) of median perineal prostatectomy, a procedure to which, after abandoning other methods for the relief of prostatic disease, he has devoted his attention.

The usual surgical preoperative procedures are followed, with the single exception that the bladder is not irrigated. The patient on the table, the staff is passed. A change is then made to an exaggerated lithotomy position, the legs held by assistants. A longitudinal median incision, beginning at the scroto-perineal fold, a little over an inch in length, is made and carried to the urethra. The tissues are then cleared away from the urethra until the membranous part is perceptible; this is perforated with the knife or finger, the bladder entered, the staff withdrawn, the enucleation begun and completed—this taking rarely over ten minutes, generally about six.

After-treatment is simple but most important. Neither irrigation nor drainage-tube is used. The dressings are changed frequently, when very moist, which, for the first week, will be every two or three hours or oftener. All aseptic precautions are taken with the dressings, that no external source of sepsis may affect the wound. About the ninth day a sound is passed. This may be somewhat difficult, as, owing to the vacant space, the normal curve of the urethra is changed, and an almost straight instrument is required. In many cases perfect control of the bladder is retained, consequently the urine does not dribble. The wound closes in

about twenty-four days, and thereafter the urine is passed with a frequency varying with the conditions of the bladder. The patients are not only permitted but urged to get up at the earliest moment consistent with their feelings, and in a recent case one was permitted to take a tub bath and go to the toilet on the second day. This operation destroys more or less of the membranous urethra, probably about an inch. This in no way seems to affect the power of the bladder to retain its functions nor the urethra to regain its continuity. The seminal ducts also are undoubtedly more or less injured in some of the cases, if not all, but this does not affect their functions.

The total number of operations made by this method is 78; the last one is too recent to be included in the data given, and the two preceding, while having passed the danger period, are still but convalescents, so that 75 cases have been tabulated. Seventy-five cases, average age about 67; the youngest two 45 and 48; oldest two 82 and 84; two deaths, one from sepsis and one from shock; fourteen had stone; largest prostate removed, 7½ ounces; four cases have been reported carcinomatous; three have confirmed the diagnosis, one dying after one year and one after twenty-three months of comfort in robust health, the other still in good health; one syphilitic.

Mortality.....	2	{ Sepsis 1 Shock 1
Sequelæ ...	{ Fistulæ	{ Temporary 2 { 1-7 Months Permanent 0 { 1-8 Months
	{ Incontinence...	{ Temporary, many Permanent, 0
	{ Epididymitis	{ Many
	{ Impotence.....	{ Temporary ? Permanent ?
	{ Stricture	{ Temporary 2 Permanent 0

While no one operation is a sovereign remedy for the results of prostatic trouble, the perineal method is preferable for several reasons:

1. It provides direct access to the diseased parts for exploration and operation.
2. It affords more room for manipulation.
3. It is the best route for drainage.
4. If required, a suprapubic opening can be made, and in all epicystotomies drainage should be made, for in the pathologic conditions existing in associated organs drainage is an advantage and best made through the perineum.

SUTURE OF THE BRACHIAL ARTERY.

Suture of the brachial artery has been accomplished successfully twice in the experience of TORRANCE, as reported in *American Medicine* of December 17, 1904.

In the first case, reported in July, 1904, he happened to be in the hospital when a boy of seventeen arrived with left arm badly crushed, involving the brachial artery. A few hours after operation there was complete restoration of the radial pulse.

The other case was that of a negro, who was admitted to the hospital with a wound in the chest which afterwards proved to be mortal. When the wound was first examined, however, it was found that the brachial artery and the basilic vein were both punctured. The wound in the vein was sutured with a small curved intestine needle, several interrupted sutures of silk being employed. One purse-string suture was introduced and completely closed the wound in the artery. There was full and immediate restoration of the radial pulse. The wounds in the vessels were covered by a muscle graft.

PROSTATECTOMY—DIFFERING METHODS OF OPERATING.

While prostatectomy through the medium of a perineal cystotomy has, at the present time, the greatest number of advocates, FULLER (*Journal of the American Medical Association*, Nov. 12, 1904) does not use it as often as formerly. The operation, however, is not as complicated as might appear from some descriptions. If the thighs of the patient are sufficiently flexed, all that is necessary is a small median incision which enters the perineum just above the rectal sphincter, and which extends above the rectal wall to the prostatic urethra. The tissues in this region are very elastic, consequently this narrow incision can be dilated sufficiently for purposes of extraction. In this form of operation, if the prostatic mass is found to be too large to admit of easy extraction, it should be broken into two or more pieces.

Perineal prostatectomy when thoroughly performed, as it should be, radically removes all obstruction, and leaves the patient able, easily and voluntarily,

to completely empty his bladder. Convalescence from this operation, in the hospital, averages some days less than after the suprapubic operation. If a prostatic has a good expulsive force to his bladder, in most instances prostatectomy is advocated through perineal cystotomy. If the prostatic hypertrophy lies surrounded by a mass of dense tissue, the result of repeated attacks of inflammation, it might be well, especially if there is any doubt as to the strength of the bladder walls, to decide against perineal operation.

In cases complicated with very foul cystitis, associated with attacks of vesical hemorrhage and phosphatic calculus formation, the operator may consider a suprapubic vesical opening necessary, as well as the perineal one, in order to secure for the bladder the requisite degree of rest and drainage. The reasoning would likewise be decisive in cases where the renal pelves and structure had become secondarily involved to any marked degree. The reason for deciding against the perineal operation in cases where the bladder wall is lacking in expulsive force lies in the danger which such a patient so operated on runs should much blood-clot accumulate in the bladder after the operation; for if, under such conditions, the clot accumulates, the bladder has no force to expel it, the perineal tube becomes blocked, the continuance of bleeding is then encouraged by the incessant though ineffectual tenesmus which the lack of drainage encourages, urine accumulates behind the blood-clot, and overdilatation of the bladder results. In such a contingency, artificial suction through the perineal tube or removal of the tube and of some of the clot by means of forceps may result in effectual relief. The safest method of remedying such a complication, however, is by immediately opening the bladder suprapubically, emptying it of clot, and establishing counter-drainage in that part.

In the performance of suprapubic prostatectomies, it is the practice of Fuller to leave a perineal as well as a suprapubic vesical vent, in order to establish perfectly free drainage. Where there is doubt as to choice of operation, his usual perineal opening, through which he has inserted his finger, is first made, in order, by means of the sense of touch, to more exactly

study existing conditions. If, after such study, extraction of the prostate through the perineal incision is decided against, the customary suprapubic operation is then done, using the perineal incision for drainage purposes only. Should Fuller find, owing, perhaps, to dense adhesions, that he could not complete the enucleation of a prostatic hypertrophy through the perineum without resorting to a degree of traction or force greater than might be safe for the patient, it is also a simple matter to abandon that operation, leaving its incision for vesical drainage only, and complete the extraction by the suprapubic route.

Suprapubic prostatectomy is the method of choice in advanced cases of prostatic disease, complicated by the resulting lesions of the urinary tract. There is also little danger of injuring the sexual apparatus in the performance of this operation. If certain rules are observed, if the incision is properly sutured and drained, and if the surgical supervision of the after-treatment is efficient, the suprapubic operation should in itself give no extra mortality.

Fuller's experience to date with prostatectomy is somewhat over 300 cases. If cases complicated with very marked uremia are excluded, he can operate with an average risk to the patient of not more than, and probably under, five per cent. Death from the operation itself is practically *nil*.

In conclusion, Fuller protests against classing as true senile hypertrophy cases of middle-aged or even younger men seemingly from their histories, to represent simply inflammatory effusions in connection with the prostate or its periphery.

ROENTGEN TREATMENT OF DISEASE OF THE BREAST.

LEONARD (*American Medicine*, Dec. 3, 1904) contributes an interesting paper upon the x -ray treatment of cancer of the breast, based upon twenty-six cases. Nearly half the patients are living to-day, and nine remain apparently cured; twelve died, and two have not been heard from. He believes that there is an agent developed that checks the growth of malignant cells or destroys them, and that although the x -ray treatment cannot supplant op-

eration it should always supplement it, the best interest of the patient calling for the benefits of both courses of treatment.

A review of the cases which are reported briefly is not convincing as to the beneficial effects which have been claimed for the use of the x -ray. It is noted in some cases that the external growth decreased, yet the invasion of the deeper parts seemed to be progressive. Aside from the large mortality of the series, the time during which the observations have been carried out is insufficient to justify any conclusion, since sixteen of the reported cases were observed in 1903 and 1904.

Leonard gives some admirable directions regarding the use of the x -ray. He affords protection against burns by means of a lead screen, which surrounds a tube over a pasteboard box. He employs a moderately low vacuum.

THE TREATMENT OF CANCER.

MAYO ROBSON (*Lancet*, Dec. 12, 1904), after instancing the circumstances which strongly suggest that cancer is both contagious and inoculable among human beings, as it undoubtedly is among the lower animals, contends that, as a necessary consequence of such belief, all the dressings of cancer patients should be destroyed, or at least disinfected by boiling; also that the common use of beds and utensils employed by cancerous patients should not occur.

The only hope of permanent cure lies in the early diagnosis, and in the immediate, complete, and wide removal of the malignant disease.

It seems reasonable to hope for a discovery which can be confidently depended upon to prevent cancer, but until the biologists have attained this, the best hope lies in preventive operations—in other words, the surgical remedy of what may be called precancerous conditions. This implies the removal of moles or warts; the prompt cure of mechanical ulcerations, such as those incident to a jagged tooth; the stopping of tobacco when it produces a chronic inflammation of the lips or mucous membrane; operation upon the gall-bladder when persistence of symptoms indicates that there is chronic inflammation in this region; prompt surgical interven-

tion in cases of eczema of the nipple, and similar treatment for all cysts and tumors appearing in the breast; performance of gastroenterostomy in cases of persistent symptoms indicating a chronic and intractable ulcer of the stomach; early recourse to the various gynecological procedures suggested by such lesions as laceration of the cervix, fibroids, etc.; an exploratory celiotomy and, where indicated, resection of the intestines for the relief of ulcerating cicatrices of the intestines.

As to the radical treatment of cancer once developed, Robson has, in private practice, performed 62 excisions of the breast. Of this number, he was unable to trace 8; 23 survived the three-year limit, 20 are living and well at periods up to twelve years after operation, 29 had recurrence, but in 8 it was over three years subsequent to operation. Halsted's statistics are quoted. There are similar favorable reports from Bryant, Teale, and Watson Cheyne. The latter holds that something like 50 per cent will remain well for a number of years, and that in those cases in which the tumor is small, and the glandular invasion is slight, the proportion of cures will be considerably greater.

As to the radical treatment of cancer of the stomach, which carries off more victims even among women than either uterine or breast cancer, an early diagnosis and a radical operation are essential for radical cure. Robson holds that whenever a patient at or under middle age complains somewhat constantly of indefinite gastric uneasiness, pain, and vomiting, followed by progressive loss of weight and energy, and associated with anemia, the possibility of cancer of the stomach should be recognized. In a suspected case, if no improvement takes place in a few weeks at most, an exploratory operation is more than justified. Kocher has performed 97 resections of the stomach for cancer and sarcoma. Of these 65.4 per cent recovered, and 34.6 per cent died. This was between 1881 and 1898. From 1898 to 1904, 45 cases were operated on, with 82.2 per cent recoveries, and 17.7 per cent of deaths. Of the 8 last cases which died 6 were from pneumonia, 1 from perforation at the point of union, and 1 from perforation of the transverse

colon in consequence of local gangrene. If the cases of pneumonia be excepted, the mortality would be only 5.1 per cent directly from operation. In regard to definite results, 51 of the whole series died later, living up to six years, much longer than after gastroenterostomy, and in much better condition. Of the 20 cases still living, in 17 more than a year has elapsed since operation; in 12, more than two years; and in 7, more than five years. Excellent statistics are also quoted by Mayo, McDonald, and Murphy.

As to the radical cure of cancer of the tongue, Whitehead's experience is cited, giving a mortality of a little over 2½ per cent for the operation. He is of the opinion that, provided the tongue and adjacent parts are removed thoroughly and early, there exists the fair prospect of life being extended beyond the three-year limit. If, however, the tongue be attacked in the precancerous stage, or at the very beginning of cancer, the prognosis in this class of cases would be very much better. Cancer of the larynx gives a much brighter picture. Semon notes that of the cases operated on by him between 1881 and 1902, 85 per cent were permanently cured. He operated by thyroidotomy, Kocher by the more formidable operation of partial and complete laryngectomy. The latter obtained radical cure in 26.6 per cent of cases.

As to cancer in the intestine, appearing as it does in the form of a columnar-celled carcinoma, it is likely to remain limited to the gut, even when it has advanced to a fatal issue. Hence it should be peculiarly susceptible to radical cure by enterectomy, if the operation be performed early. Even though enlarged glands be present, these are not necessarily cancerous.

Cancer of the rectum of all others lends itself to a radical cure.

The operative mortality of proctectomy by the perineal method is about 8 per cent in Cripps's hands. Of 38 cases, 7 were well more than three years after operation. In no case did recurrence take place after three years.

Even cancer of the gall-bladder is not a hopeless affection. Robson has operated upon 12 such cases, in 11 of which the disease extended to the liver, forming a tumor of some size. Five of these pa-

tients are still living, at periods varying from five to one and a quarter years subsequent to operation. Mr. Butlin shows that 53 per cent of cancers of the liver are radically cured by removal, even after the precancerous stage is passed.

In cancer of the penis, amputation yields a cure of one-third of the cases operated on.

In cancer of the uterus, Olshausen has performed 808 vaginal hysterectomies since 1903. He has done 137 operations with a mortality of 4.4 per cent. Seventy per cent lived for two years without recurrence, and 38 per cent had no recurrence after five years.

As to palliative operations, the author strongly recommends enterostomy in obstructing cancer of the pylorus, particularly if attended by great pain; and intestinal anastomosis when the intestines are invaded in such a way as to make the radical procedure inadvisable. Colostomy is at times indicated when the rectum is infiltrated. Cholecystenterostomy is advisable for the relief of cancer of the pancreas compressing the bile-ducts. Indeed, after a number of these operations, the patient apparently recovered from the malignant disease, showing that it was in truth an inflammatory infiltration.

Robson mentions the spontaneous recession of apparently malignant tumors after mere exploratory operation.

LUMBAR ANESTHESIA—EXPERIMENTAL STUDY.

After showing that solutions injected into the subdural space are absorbed much more rapidly than when given subcutaneously, and stating that the greater toxic effect is due to this fact, KLAPP (*Archiv für klinische Chirurgie*, 75 Band) goes on to detail experiments performed with a view to determining a method by which the absorption of cocaine may be delayed without interference with its anesthetic effect.

Adrenalin, which answers this purpose admirably in subcutaneous injections, does not serve so well subdurally, so Klapp tried the effect of injecting solutions of cocaine with glycerin, gelatin, and oils, each of which delays absorption from the alimentary canal. The first of these substances is too irritating, and the

second when sterilized loses to a great extent its efficiency, so that only the third would be practicable in man. As hydrochlorate of cocaine is insoluble in oils, Klapp worked at first with emulsions of watery solutions and glycerin in olive oil. The olive oil prevents the local irritation of the glycerin, and the mixture worked very well; but recently he has discovered that cocaine and its oleate and phenolate are soluble in oils, and he has used such solutions. All of his experiments were successful as regards the production of complete anesthesia and the absence of toxic effects; sometimes a dose fatal in watery solution could be injected in emulsion without any bad result. No experiments were performed on man.

A CASE OF PROSTATISM WITHOUT PROSTATIC HYPERTROPHY.

MORAN (*Ann. des mal. des org. génito-urin.*, xxii, 1623) reports the case of a patient who had a small but very hard prostate, which produced such inextensibility of the urethral orifice that the pressure of emptying the bladder caused a dilatation of the neck of the bladder and valvular closure of the orifice. There was a fibrous band over the mouth of the urethra which on cystoscopic examination was mistaken for an enlarged prostate, and a Bottini operation was performed. As this failed to relieve the retention, suprapubic cystotomy was performed and the fibrous band cut in three places, with complete relief of symptoms.

INDICATIONS FOR PROSTATECTOMY.

ECCAT and PROUST (*Assoc. Franc. d'Urologie*, Oct. 29, 1904) offer a critical review of indications for prostatectomy.

The principal indication is the failure of catheterism to bring relief. The decision about operation is affected by (1) the age; (2) the size of the prostate; (3) contractility of the bladder; (4) general health and condition of kidneys; (5) social position; (6) possibility of malignant degeneration. Catheterism will give relief and make life bearable as a rule if properly performed. It will almost always be possible by proper variety of catheter, even if the prostate is injured, and when it is impossible, suprapubic cystostomy

should be performed if the bladder is infected; if the bladder is not infected, simple aspiration of the urine will generally sufficiently reduce the congestion of the prostate to allow urination. At first the bladder is easily infected, and antiseptic lavage must be used to prevent inflammation. Silver nitrate solution is best adapted to this purpose, and urotropin should also be administered by mouth, but after a time the mucous membrane becomes more resistant and cleanliness suffices to prevent infection.

When a case is seen from the beginning, it is only carelessness which makes operation necessary. In old persons operation should especially be avoided if there is any sign of weakened intelligence, or the shock may cause sudden dementia. If it is thought that the mental trouble may be due to absorption of toxic matters from the urine, it is better to use the catheter regularly until all signs of intoxication pass away before operating. The size of the gland does not always stand in relation to the amount of retention, nevertheless operation should be more often and sooner performed in the case of very large prostates, although possible increase in size from acute inflammation or congestion due to retention should first be excluded. The part of the prostate especially enlarged may always be determined by cystoscopy, but partial excision is only to be recommended where the indications are very precise, as in a pediculated medial lobe or a lateral lobe forming a hood over a calculus. Nephritis is not a positive contraindication, although most of the postoperative deaths are due to uremia. The degree of functional power should be determined before operation, and if it is lowered attempts to better the condition of the kidney by frequent catheterization should first be made. This is especially true in acute exacerbations of chronic pyelonephritis. Albuminuria, tube casts, and hypazoturia are of less importance than polyuria as danger-signals. Vesical contractility is generally better in the large, quiet bladders than in the irritable. Any form of operation may destroy the procreating power. Social conditions make proper catheterism impossible among the working classes, therefore operation is more often demanded.

Clinical Types.—1. First stage, in

which regular catheterism is not required. Operation should not be performed if asepsis can be maintained, as many cases remain in the first stage. There may be spells of congestion in which catheterism becomes needed, but which pass away. If there is chronic inflammation or infection of the prostate, however, operation is demanded after the failure of medical means. In acute or recent cases one should try catheterism for several months before resorting to operation, hoping for return to first stage.

2. Chronic aseptic retention without distention, urinary residue not more than 300 cubic centimeters daily. This condition is incurable, and as the complications are dangerous, prostatectomy should be performed if general health permits. If this is refused, catheterization twice daily will generally prevent the condition from growing worse.

3. Chronic aseptic retention with distention. The dangers of infection here are very great, and therefore prostatectomy should be performed if possible. If there are uremic symptoms, catheterization should be done frequently, and the surgeon should wait until they pass off before operation. Hemorrhage frequently follows too sudden emptying of the bladder by catheter, but is not a contraindication to operation. Infection increases the danger from this source.

4. Chronic septic retention. Prostatectomy is the only relief, particularly when regular and special care is not possible, and it should be performed always. Where the prostate is much deformed and when functional troubles exist it is demanded, and also in the following conditions: (a) Difficult or painful catheterism; (b) vesical pain; (c) frequent urination; (d) hematuria, especially if vesical; (e) pyuria—if it is vesical, the bladder should be treated for some time, first with antiseptic lavage, so as to avoid cellulitis and phlebitis as far as possible; (f) fever; if the case is not grave and the cause is local, wait; if the case is grave and due to such conditions as periprostatic abscess, pyelonephritis, or purulent bronchopneumonia, cystostomy is preferable.

5. Prostatic calculus. Prostatectomy relieves two conditions at once, but lithotripsy often gives complete relief, and if the stone is very large suprapubic cystotomy is preferable. Patients relieved

of their stones by lithotrity or suprapubic lithotomy sometimes void their urine less freely afterwards, but not very often. Prostatectomy also prevents the occurrence of another stone.

6. Prostatic cancer. Operation is always incomplete and ineffective.

RESECTION OF THE PYLORUS.

RYDIGIER (*Zeitschrift für Chirurgie*, xxxi, 1313) describes a method of resection of the pylorus. The operation is done in two stages.

1. The intestine is cut across about a foot below the duodenojejunal junction, and the upper end inserted into the duodenum about six inches below the section by a lateral anastomosis. The stomach is then cut completely across above the tumor, and the cardiac end after partial closure is united to the free end of the duodenum. The pyloric end is partly closed by a purse-string suture, and after a tube has been passed through the pylorus, it is sewed into the abdominal wound with the sound protruding through a small fistula. The patient is fed through this sound until the wound in the stomach has had time to heal.

2. The surgeon reopens the wound, and after freeing the stomach from adhesions cuts off as much of the gut as necessary, closing the free end and leaving a stump of intestine in the abdomen.

Advantages: (1) Food does not pass over fresh wounds. (2) Very radical interference can be practiced with safety.

RESULTS OF CERVICOVAGINAL SECTION.

H. v. BARDELEBEN (*Zeitschrift für Gynecologie*, p. 1377) writes of this operation, which is performed when it is desired to empty the uterus rapidly. It consists in complete section of the cervix from its margin as far as is necessary, even to the insertion of the vagina. Its purpose is to substitute a surgical cut for the lacerations which the cervix is apt to receive in these manipulations. It has so far been performed on forty women, and the author communicated with many of these and himself examined eight to determine the final result. There were no bad after-effects reported, and in the cases

seen by him the wound was thoroughly healed, the cervix smooth, and the uterus not displaced. Several of the women had since become pregnant, but none had been delivered.

SURGICAL TREATMENT OF ATROPHIC CIRRHOSIS OF THE LIVER BY TALMA'S OPERATION.

MONPROFIT (*Annales de Chirurgie et d'Orthopédie*, xxii, 1904), after stating that the ascites, although generally thought due to portal hypertension, is more probably due to some other cause, since ligation of the portal vein does not cause effusion and disease of other abdominal organs, says nothing about operative technique, but speaks only of results. The complications are those of unoperated cirrhosis plus those seen in cases with fistula of Eck, and to avoid the latter the patients should avoid meat for some time after operation. The ascites may continue and necessitate tapping for a short time after operation, but later disappears. Drainage should be avoided on account of the danger of hernia. Constriction of the intestine may be avoided by denuding a large surface of the liver. The statistics are favorable, showing in 204 fully reported cases 34 per cent of complete cures, 13 per cent improved, 12 per cent unimproved, and 41 per cent deaths, half of these occurring soon after operation. Operation is indicated as soon as ascites becomes permanent, or medical means are of no avail, even if the disease is still in the hypertrophic stage.

TETANUS—SERUM TREATMENT.

The serum treatment of tetanus has received some attention at the hands of SUTER (*Archiv für klinische Chirurgie*, 75 Band, 1 Heft). He first compares the results of intracerebral, intradural, and subcutaneous injection. The first should never be used. The last two have given about equally good results. As regards the effectiveness of the serum at different periods after the injury, he divides the time into three arbitrary parts:

1 (A). Absolute utility, during which serum gives complete protection.

2 (R). Relative utility, during which the serum may or may not save life.

3 (I). Inactivity, during which in-

jections do not improve the patient's chance of recovery.

The length of each of these periods varies greatly according to the dose and virulence of the toxic agent, and the resistance of the individual.

According to Behring the R period ends thirty-six hours before symptoms begin. These periods have been established, and their limits approximately defined, by the results of a very large number of injections. Hundreds of preventive injections have been given after wounds, but in only twelve of these patients did symptoms of tetanus develop. Two of these cases are extremely doubtful, two died of tetanus, and one, after recovering from trismus, died of delirium tremens. No cases have been reported of recovery following injections after the beginning of symptoms, which would probably have perished without such injections.

A CAUSE OF INTESTINAL OBSTRUCTION AFTER GASTROENTEROSTOMY.

GRAY (*Lancet*, Aug. 20, 1904) reports the case of a woman on whom he operated for gastric hemorrhage, the estimated total loss having been five pints.

The stomach was opened and inspected, but no ulcer was seen, whereupon a posterior retrocolic gastroenterostomy was performed by means of suture. On the sixth day after operation the patient complained of abdominal pain, which was followed on the seventh day by vomiting and obstinate constipation.

Operation being refused, two drachms of magnesium sulphate combined with strychnine was given by the mouth, which produced such an excess of anguish that the patient readily agreed to any procedure which would give her relief.

It was found that practically the whole of the small intestine had insinuated itself from left to right through the opening in the mesocolon into the lesser peritoneal cavity. The intestine was readily pulled back, and the opening was closed by suture. The colon was enormously distended with gas. Although it was quite patent to the rectum, Gray rather than pass a rectal tube saw fit to puncture it with a trocar and cannula, the resulting puncture being closed by suture and a piece of omentum.

Gray suggests that the administration of a brisk purgative to a patient who, while suffering from a mechanical intestinal obstruction, refuses operation is one of the promptest and most efficient ways of securing acquiescence with the surgeon's wishes.

MOVABLE EXOSTOSES COMPLICATING TRAUMATIC BURSITIS OF THE HAM-STRING TENDONS.

TOUSSAINT (*Archives de Médecine et de Pharmacologie Militaires*, xliv, 1904) reports a patient, twenty-two years old, who had sustained a severe trauma below the left knee five years before, which resulted in a slowly growing, hard nodosity, for which he had had no treatment. He was forced to enter the hospital on account of pain after a long march. There were two hard, round, movable masses below the knee, seated in the region of the insertion of the inner hamstring. A radiogram, which was confirmed by subsequent operation, showed a hygroma, which contained three freely floating bony masses, and an osteoma, which was chiseled off.

Literature shows no similar case, although exostoses after trauma are not uncommon at this age, when the epiphyseal union is not complete.

A complete restoration of function and contour was obtained.

METATARSOTARSAL VALGUS OR HUMPED FOOT, AND ITS RELATION TO BOOTS.

BRADFORD (*Boston Medical and Surgical Journal*, Nov. 24, 1904) after showing the relation which the shape of the shoe bears to deformities of the foot, and observing that ten or fifteen years ago the chief deformities were those of the toes and the development of a weak and flat foot, notes that of late years boots are worn with a long and narrow shank, with a high instep and flat waist. This causes slight pains in the front of the foot, with tenderness and aching after walking or standing. Pain is located more particularly on the inner and under side of the first metatarsal, and on removing the shoe a certain amount of redness may be observed in this position, or a little behind it. The symptoms are not infre-

quently observed in athletic people, and may or may not accompany those attending Morton's affection or flattening of the transverse arch. The cause of the trouble is incident to an attempt upon the part of the manufacturer to prevent the spreading of the shoes when worn, the last being shaped low in front, and the upper being cut snugly and stitched with an inelastic oblique seam which exerts close-fitting pressure upon the whole of the front of the foot. The movement of the front of the foot, especially the first metatarsal, is severely hampered, while the narrow toe-cap limits the play of the toes. The deformity may properly be described as a humped foot. The strain comes at the metatarsal articulation.

Of course the immediate remedy of a well developed case is obvious, but prevention must be in the line of education, since it is almost impossible to induce even those who experience considerable suffering to depart from the prevailing fashion in the selection of their foot-wear. Bradford suggests for the hopeless slaves of fashion that moccasins should be worn whenever possible, that work shoes should be provided, and that those of deleterious shape should be worn only on state occasions.

DRAINAGE OF THE PERICARDIUM.

HENDELBURY (*Lancet*, Oct. 22, 1904), basing his opinion on an experience of three cases, describes an operation which he thinks, with slight modifications, must become the routine method of drainage of the pericardium, since it is simple and affords excellent drainage from the lowest available spot of the pericardial cavity.

A vertical incision is made. The sixth costal cartilage is removed, except in the case of small children and infants. The internal mammary and superior epigastric vessels are pushed toward the middle line, or divided, and the cellular interval, the so-called costo-xyphoid space between the seventh costal cartilage, the ensiform cartilage, and the attachment to the diaphragm, is broken into. The triangularis sterni, with the intercostal membrane and muscle, is divided in the line of the incision up to the sixth costal cartilage. Both the right and left pleura are carefully pushed aside, and the pericardium is in-

cised just above the level of the base of the ensiform cartilage. With the finger this incision is enlarged downward into the costo-xyphoid space. The drainage employed is an empyema tube the size of the forefinger. About twenty minutes should suffice to complete the operation; the younger the patient the less time required.

As an illustration there is reported the case of a man thirty-one years old, admitted for pneumonia of the left lung chiefly, but exhibiting cardiac dulness four fingerbreadths to the right of the sternum. The sixth as well as the seventh costal cartilage was resected, and from his pericardial sac was evacuated four ounces of fluid. Many adhesions between the heart and pericardium were broken down, and a tube was inserted. The reporter states that from the day of operation the patient recovered slowly and steadily, though from the very brief report there seems no reason why this happy termination of the case should have been hastened by the operative procedure.

The second case, a boy of twelve, with a history of rheumatic fever and heart trouble, showed the signs of a pericardial effusion, for the relief of which the seventh costal cartilage was removed and the left pleura was pushed aside, whereupon the pericardium was incised, but the right pleura was wounded. It is stated that the patient was no worse for this wounding, and that the resulting pneumothorax disappeared within two days. The quantity of fluid evacuated is not stated. The patient perished some five days later. The autopsy showed extensive endocarditis. In neither of these cases does the reporter make clear the reasons for his having performed this operation.

COLLATERAL PARALYSIS THE RESULT OF CEREBRAL TRAUMA.

Preceding the details of his experience in one case of this condition, PRINGLE (*Scottish Medical and Surgical Journal*, November, 1904) takes pains to explain that the term collateral is applied to those cases of paralysis due to cerebral lesion in which the lesion and the paralysis are apparently on the same side, instead of being crossed or contralateral. He had one patient probably suffering from such a con-

dition, a man of fifty-eight, who went to his work as usual in the morning, but went home about an hour after, saying he did not feel well.

On admission to the hospital there was found a transverse gutter-like depression of the skull in the region of the occipital protuberance. No bleeding from the ears or nose had occurred, but there was a very slight bruising of the right eyelid. There was no subconjunctival hemorrhage and no proptosis. The right pupil was small and its reaction doubtful; the left eyeball was shrunken and functionless, in consequence of an old injury. Respiration was slow and stertorous, with puffing of the cheeks; pulse slow and full; the arteries very atheromatous and rigid. The right limbs were slightly rigid, the left were not; when stimulated by pinching or pricking the patient at once moved the left limb, but never moved the right. He was never seen to make any spontaneous movement of any limb. The facial muscles were not apparently involved. The urine drawn off by catheter contained albumin with granular and hyaline casts.

There did not appear to be any local signs of a fracture of the skull beyond the occipital depression, which apparently was not of recent origin. It turned out that about twenty years previous the patient had been treated in another hospital for "a fracture of the skull."

Cerebral hemorrhage was the diagnosis, probably in the left hemisphere.

The patient died the following day. On post-mortem there was found extensive laceration of the right frontal and temporosphenoidal lobes, with a large effusion of blood in the right middle and anterior fossæ, which extended well upward over the surface of the right cerebral hemisphere.

Pringle is of the opinion that when the surgeon has to do with a patient who is comatose, and who does not make spontaneous movements of the limbs, the practitioner can resort to stimulation by pinching or pricking the skin, etc., for the purpose of deciding whether there is local paralysis or not. If the limbs of one side of the body respond, while those of the other side do not, there is reason to think that there is a lesion on the side of the brain opposite to the non-respon-

sive limbs. If the surgeon should, however, trephine over the side indicated and find no cause, he is bound to explore the opposite side of the brain. At any rate such patients will die unless the effused blood can be removed by surgery.

CLOSURE OF WOUNDS OF THE ABDOMINAL WALL—OVERLAPPING THE APONEUROSES.

It has been the practice of NOBLE (*Medical News*, Dec. 17, 1904), in the closure of wounds of the abdominal wall, to overlap the fasciæ from one-third to one-half inch as a routine method. The results secured in the prevention of hernia have been such as to convince him that this method insures a firmer union and an almost certain safeguard against the development of hernia than any other method in use. Since 1897, about 1150 wounds have been closed after this manner, and only three cases of hernia are recorded.

The method has been used in the closure of the ordinary incisions of the abdominal wall, for the closure of incisions of the inguinal canal when opened to shorten the round ligaments, in all operations for the cure of hernia, whether umbilical, inguinal, or ventral (postoperative), and for the cure of diastasis of the recti muscles.

The method is simple. The incision in the hypogastrium for operation on the female pelvic organs may be taken as the type. This incision is made by choice through the inner border of the right rectus muscle. In closing the wound, the peritoneum is first closed with a continuous suture of fine cumol catgut. The fat is then dissected from the upper surface of the aponeurosis of the transverse muscles on the left side of the wound from one-third to one-half inch. The aponeurosis upon the right side of the wound is then separated for an equal distance from the rectus muscle. The muscles and fascia are then sutured by means of a medium-weight chromicized catgut suture in the following manner:

The suturing is begun at the lower angle of the wound upon the left side. The suture is passed from above downward through the aponeurosis and rectus muscle. Then the separated bundles of

the rectus muscle are united with a continuous suture until the upper angle of the wound is reached, when the suture is passed from below upward through the aponeurosis upon the left side of the wound. The suture is then passed from below upward through the aponeurosis upon the right side of the wound, and an additional suture is taken above this point to fix the suture and take the strain off that part which has brought the muscle in apposition. The aponeurosis is then closed from above downward by catching the aponeurosis upon the left side of the wound after the manner of the Lembert intestinal suture, and then passing the needle from below upward through the aponeurosis upon the right side of the wound. When this suture is drawn taut, it slides the aponeurosis of the right side of the wound upon that of the left side and holds the two in apposition, the amount of overlapping depending upon the distance from the edge at which the needle is passed through the aponeurosis upon the left side of the wound. The process is repeated until the lower angle is reached, when the two ends of the suture are tied. In long wounds two or more mattress sutures are placed to take tension off the lines of continuous suture. The fat is closed with a continuous suture of fine cumol catgut. The skin is closed with fine cumol catgut suture by the intracuticular method. When median wounds are long, extending near or above the umbilicus, care is taken to unite the posterior aponeurotic sheath of the rectus muscle with the peritoneum. For this purpose frequently a fine chromicized catgut suture is used. This principle is followed also in wounds through the upper portion of the rectus muscle, and in wounds of the rectus muscle in operating for appendicitis, in order to secure firm union of the posterior sheath of the rectus.

In operations in the groin, whether for shortening the round ligaments or for the radical cure of inguinal hernia, the internal oblique muscle and any convenient aponeurotic tissue is sutured to Poupart's ligament with chromicized catgut, care being taken to begin the line of suture at or above the upper border of the internal ring. The incision in the aponeurosis of the external oblique is then closed by

overlapping the aponeurosis to the outer side of the wound upon that to the inner side of the wound.

ECZEMA—RESUME OF RECENT LITERATURE.

In concluding his résumé of recent literature on eczema, GARDINER (*Scottish Medical and Surgical Journal*, November, 1904), says that although it may not have brought to light many new remedies of value, it has taught how to use the old drugs in a more scientifically accurate manner.

The various treatments, of course, are based on the views held as to the nature of the complaint.

Some remarkable causes have been assigned as producing the complaint. Thus one surgeon reports that it broke out in a child who it was discovered fed on milk containing an excessive amount of salt. As a proof that this was no coincidence, another child fed on the same milk underwent a like experience. The nervous strain induced by the scholastic examinations of his sons brought on attacks in a man whose mind was bound up in their scholastic achievements. Coffee, also, has produced the condition, or at least extended it.

As to the treatment, one of the best remedies is simply rest, and in bed. Light, non-irritating clothes are worn. While resting in bed, local remedies can be applied to best advantage.

Internal remedies are not indicated until local means fail, but their use is advised in the acute wide-spread inflammatory type, and also in old age. Alkalies are recommended where there is any rheumatic or gouty history. Cod-liver oil is sometimes responsible for new lesions. On the whole, in these, a syrup is preferred, containing a combination of iodine and tannic acid, while in nervous cases valerian and asafetida have given best results. Much value is to be placed upon intestinal antiseptics, careful dieting, and detailed attention and treatment if necessary of all the emunctories.

In more acute conditions, antimony in the form of tartrate, as recommended by Jamieson, or the wine in 10-minim doses every two or three hours, as recommended by Morris, is still used by many.

Brodier finds an important place in his

armamentarium for such drugs as quinine, colchicum, digitalis, and ergot. Belladonna he uses when there is much exudation, and valerian in adults, bromide of potash in children; sulphonal and trional give him best results in pruritus, nervousness, and insomnia. Insistence is laid on the evil effects of opium and chloral on skin lesions.

The futility of drugs may be explained, in cases of pruritus, by the morbid anatomical features of the disease—papules, vesicles, and pustules, arising as they do in the epidermic layers, being very itchy, while lesions affecting the corium are not so affected.

As to diet, it is generally held that a regimen of milk is indicated for a few days at least in inflammatory eczema, while many recommend a free use of vegetables as part of the diet after recovery; but Whitfield states that he has observed acute attacks on vegetarians only disappear when a diet of meat and hot water was substituted. Besnier is quoted by Trémolières as saying that "the eczematous individuals in general eat too much for their mode of life. Therefore they should be counseled to restrict their diet and to have meat only at one meal." He further would omit fish, veal, pork, cheese, acid vegetables, such as tomatoes, spinach, asparagus, and onions, and alcoholic liquors of any kind.

Local Treatment.—This must depend entirely on the stage of the disease and character of the eruption, and no hard and fast rule can be laid down.

In the early acuter stages, Brodier advises the application of starch poultices, but in some cases he finds chamomile lotion acts better, and in old arthritic cases prefers to use dusting powders of bismuth, talc, zinc oxide, starch, and lycopodium. If the eruption passes the erythematous and papulovesicular stages, Whitfield considers that powders are no longer useful, and lotions which are mildly antiseptic are best, as they allow free drainage. Of these, lead lotion, which is only useful when moist, calamine, which acts even when dry, and ichthyol, not stronger than 3 per cent in water, are commonly used by him, the addition of one per cent carbolic acid being made if pruritus is severe. On a limited weeping area with edematous base, as

frequently seen near the flexures of the limbs, a solution of one-half to ten per cent of silver nitrate or nargol is recommended by Alibert, and has long been in use in this country.

Lyle, acting on the parasitic theory, claims successful results in all his cases of weeping eczema by the application of lint soaked in 1-in-2000 biniodide of mercury; the affected parts, he states, become dry, and any remaining patches are again treated, the cure finally being completed by ointments or lotions.

Blake, with a similar bactericidal end in view, uses formalin, apparently in one-per-cent solution, in dry eczemas; and where there is exudation, glutol, which is a combination of formaldehyde and gelatin in formulæ such as

Glutol, 3j;
Pulv. talci, ad 3j.

Gaucher has obtained excellent results in acute eczema with picric acid one per cent in water. The part previously cleansed by moist applications is painted every two or three days with this, and after each painting is dressed with aseptic wool and bandaged, the only precaution being that the head must be avoided, as this treatment stains the hair yellow.

The chief difficulty in practice with these strong lotions is, as Jamieson points out, that caking of the secretion takes place, and this has subsequently to be removed by poultices to prevent further suppuration.

Later stages of acute eczema are treated with bland ointments of zinc, bismuth, or salicylic acid, according to the choice of the prescriber.

When the disease is chronic, stronger remedies are required, and these cases, according to Whitfield, may be classified into those without and those with marked overgrowth of the epidermis and sclerosis of the true skin. For the first, plasters or ointments containing oil of cade 2 per cent, pyrogallol 1 per cent, or chrysarobin 4 per cent, may be used, and the strength increased if necessary; but when there is great overgrowth, the chief methods used are the application of a strong 5- to 10-per-cent salicylic acid ointment or plaster, painting with a solution of liq. potassæ, or scrubbing with soft soap. Any of these latter modes produce strong irritation, and therefore subsequent soothing

is required by lead plaster, or oleate of zinc ointment.

With Trémolières, oil of cade is first favorite, because, in addition to its intrinsic value, it has no disadvantages of strong odor or staining clothes. He uses it in various forms—pure, mixed with an equal quantity of almond oil, 10 to 50 per cent in vaselin, 30 per cent in glycerin of starch, and 50 per cent in acetone colodion. It must be remembered, however, that its prolonged use may lead to the production of acne.

Gelatin preparations, as originally recommended by Pick and Unna, are now chiefly used to facilitate the application of topical remedies, such as ichthyol or boracic acid, when the patient is walking about; they cannot be used when there is much oozing, as the dissolved gelatin then acts as an irritant. The one in use at the Edinburgh Skin Clinique contains gelatin, 15 parts; zinc oxide, 10 parts; glycerin, 30 parts; water, 40 parts; and to this 2 per cent ichthyol is subsequently added.

Lastly, in obstinate cases, and some would say in subacute cases also, exposures to x-ray have proved of undoubted value. The action of the rays is in this, as in other skin conditions, destructive to new formations and stimulant to healthy tissue growth.

SCOPOLAMINE-MORPHINE NARCOSIS.

In a former communication KORFF reported very gratifying results from scopolamine-morphine narcosis in a series of sixty cases. These included ten cases of amputation of the breast with excision of the axillary glands; eight cases of enlarged parenchymatous goitre; nine bone operations; and six laparotomies (gastro-enterostomy, intestinal resection, gall-bladder operation, appendicitis, etc.). After extensive experimentation in a total of 200 cases he states his conclusions, in the *Berliner klinische Wochenschrift*, No. 33, 1904, that the narcosis is obtained best by using scopolamine 0.0012 gramme and morphine 0.025 gramme. This dose should be divided in three equal portions, the first of which should be administered two and one-half hours, the second one and one-half hours, and the third one-half hour before the time set for operation. This produces deep natural sleep, and is unaccompanied by any disagreeable sen-

sations. The most extensive operations can be performed under this form of narcosis. In some instances the patient may be roused by cutting through nerve trunks, or other sensitive structures, but quickly quiets down if the operation is suspended for a few moments. Sometimes it may be necessary to give a fourth injection of scopolamine 0.0002 and morphine 0.0005 before undertaking the operation. Only in rare instances is it necessary to employ a few drops of ether or chloroform to annul sensation.

The chief advantage of scopolamine-morphine narcosis is the entire absence of vomiting after the operation. It also permits of the administration of liquid nourishment before operation or immediately after the patient regains consciousness. In old people who are deeply under the influence of these drugs, the tongue may fall back, causing more or less respiratory obstruction, but this is readily overcome by pushing the jaw forward. The writer has never observed any serious symptoms arising from the use of scopolamine-morphine narcosis.

PERCHLORIDE OF MERCURY—THE EFFECT OF INTRAVENOUS INJECTIONS.

MARAGLIANO (quoted in the *Inter-colonial Medical Journal of Australasia*, June 20, 1904) maintains that intravenous injections of perchloride of mercury are always harmless, when properly carried out. The following points must be observed carefully: (1) A large vein must be selected; (2) during the injection the blood-stream must be flowing constantly, so that the injected fluid may become thoroughly mixed with the blood; (3) only dilute solutions should be used, preferably 1:10,000 or 1:5000, never stronger than 1:1000. In dilute solution the albumen of blood serum is never precipitated. With strong solutions precipitation may take place, but the precipitate is redissolved by the remaining serum.

In rabbits the minimal fatal dose is 15 milligrammes per kilogramme of the animal's weight.

The sublimate injections impart an increased resistance against infection. They increase the agglutinating properties of the blood serum, and protect the animal against lethal doses of blood poisons. It was thus possible to protect animals

against the deleterious effects of streptococci, diplococci, and anthrax bacilli by injecting 1/50 milligramme per kilogramme of weight. The action of these small doses is not a bactericidal one, but is due to an increase of the organic resistance and a development of antitoxic substances.

THE TREATMENT OF PERITONITIS.

WETHERILL (*American Medicine*, Aug. 27, 1904) believes that transudation of serum, the formation of plastic exudates and adhesions, tympanites, peristaltic arrest, and muscular rigidity are the first reactionary phases during the early stages of peritonitis. Their conservative agency in limiting and quarantining the focus of infection far outweighs the danger of autointoxication from decomposition of the intestinal contents. Purging the patient to overcome tympanites and aperistalsis promotes the diffusion of more dangerous toxins and sepsis throughout the peritoneal cavity. Aperistalsis favors the formation of a protective barrier about the focus of infection, the loops of the affected intestine themselves serving as part of the abscess wall. Meteorism, by ballooning the intestines and increasing intra-abdominal pressure, also serves the same beneficial purpose, in bringing loop to loop closely about the infecting focus and splinting the abdominal wall and diaphragm, so that not even the respiratory movement will disturb the newly established quarantine station.

After all abdominal operations the same conditions should be preserved. A determined effort should be made to empty the intestines before operation, but after operation peristalsis should be arrested. In order to combat most effectively the infection existing prior to operation, or introduced during operation, the natural resistance of the peritoneum to the development and distribution of the infection and its toxins should be secured by maintaining aperistalsis. Immediate and ultimate operations (on the first or second day) and interval cases are extremely safe; on the other hand, intermediate operations always are attended with a high mortality, and sometimes they are directly homicidal.

After the virulency of the attack has subsided or the surgeon has removed the source of infection, adhesions and exudates disappear. Excepting such perma-

nent adhesions as have resulted from the destruction of the peritoneal endothelium and the union of subperitoneal tissues (and these are rare), there will not be a vestige of the old process after a few weeks or months.

The rational management of these coincident expressions of peritonitis begins with prevention. This comprehends the treatment of salpingitis, appendicitis, typhoid fever, gastric ulcer, gall-bladder diseases, traumatisms, etc., by such dietary and medicinal means as tend to prevent the diffusion of a peritonitis, should it arise from such a primary source. It presupposes such preparation for abdominal operation as will minimize all risks of infection and excessive intestinal fermentation. After operation it depends largely on the exercise of a masterly inactivity in the care of the patient, especially in so far as purges are concerned.

Milk as an article of diet should be forbidden in all of those conditions in which peritonitis is threatened, and before and after all intraperitoneal operations. It is an ideal culture medium for the gas-forming bacteria of the intestinal tract, and is the worst form of liquid food that can be administered, particularly in typhoid fever, gastric ulcer, appendicitis, and after abdominal operations.

When peritonitis occurs and the conservative forces are called upon to fortify the individual against further invasion and diffusion of the disease by exudates and adhesions, meteorism and aperistalsis, they must be treated as allies. In extreme cases measures for the control of their excessive energy may be necessary. Opium must still be regarded as a valuable remedy in the acute stages of peritonitis as it relieves pain, conserves the energy of the patient, and promotes the desired peristaltic arrest. Practically applied, this means actual fasting for all patients threatened with or suffering from peritonitis, and soup diet for those being prepared for intraperitoneal operations. It means, also, no purges or cathartics for such patients during an attack, for some hours or a day or two before intraperitoneal operations, and for a week after operation and recovery from all symptoms of peritoneal irritation.

For the discomforts and dangers incident to extreme degrees of meteorism and reversed peristalsis, the rectal or stomach

siphon, and stimulating rectal enemas containing glycerin, salts, turpentine, alum, castor oil, etc., may be employed. No remedy is necessary or justified against simple peristaltic arrest in the small intestine, as it is wholly beneficent in its effects while it lasts, and it will be maintained only so long as it is needed. The surgeon should content himself with keeping the large, hollow viscus at either end of the canal empty and free, and the rest will take care of itself, besides taking care of the infecting focus. Such poisons as strychnine, atropine, nicotine, and eserine salicylate administered for the purpose of promoting peristalsis under such conditions are also contraindicated.

For about two years the author has applied the principles he advocates to all his cases of peritonitis and intraperitoneal operations. Never have his results been so satisfactory, and his operative cases so comfortable.

Reviews.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., assisted by H. R. M. Landis, M.D. Volume I, March, 1905.

As in previous years, this the first issue of *Progressive Medicine* for the current year contains articles upon surgery of the head, neck, and thorax, by Dr. Charles H. Frazier, Professor of Clinical Surgery in the University of Pennsylvania; another upon infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by Dr. Robert Preble, of Chicago; and others upon diseases of children, laryngology, and otology, by Drs. Floyd M. Crandall, Charles P. Grayson, and Robert L. Randolph respectively. The article of Dr. Frazier well carries out the design of *Progressive Medicine*, namely, to present its readers with a complete and accurate summary and criticism of the advances made in surgery as it is applied to these portions of the body. We note with approval Dr. Frazier's quotation of J. Chalmers Da Costa, when discussing the subject of the operative treatment of idiopathic epilepsy, to wit, that the surgeon assumes a theoretical cause for the disease and combats this with a theoretical

operation. Of course, the proposition in regard to traumatic epilepsy is an entirely different matter. To all surgeons engaged in active practice this chapter will undoubtedly prove of very great value.

Dr. Preble's article this year, as last, is a model of what such articles should be, for at one and the same time he thoroughly considers the valuable literature of the past year in connection with infectious diseases, and emphatically emphasizes his own opinion whenever such an opinion adds value to the matter under discussion, and this is very often the case. The subjects treated are those constantly met with by the general practitioner, who will find much benefit from a perusal of his views, and of those which he quotes. So, too, Dr. Crandall's article is one which is particularly advantageous for children, and deals with rickets and other diseases of childhood and infant feeding in a practical way. Our readers will probably be interested in the careful and exhaustive consideration of the serum treatment of hay-fever given by Dr. Grayson, who concludes that "it is not what it is cracked up to be." Dr. Randolph's article is an excellent summary of the year's work in otology, and much of it, if carefully read, will materially aid the general practitioner in dealing with cases of this character which fall under his care.

THE THYROID AND PARATHYROID GLAND. By Herbert Richardson, M.D. P. Blakiston's Son & Co., Philadelphia, 1905.

The preface to this book by Dr. Richardson is written by Dr. Charles G. Hill, Professor of Nervous and Mental Diseases in the Baltimore Medical College, who points out the fact that the work which has been done on the thyroid and parathyroid gland within the last fifteen years has contributed to medical literature one of its most brilliant chapters.

The volume consists in a summarization of our knowledge in regard to the physiology and pathology of these tissues. After a historical chapter, anatomy and histology are considered; then the physiology and chemistry of the thyroid gland; and this is followed in turn by chapters upon goitre, the surgery of the thyroid, and the changes which take place in this gland in infectious diseases. The concluding chapters consist in a con-

sideration of cretinism, myxedema, and exophthalmic goitre; the final chapter being upon thyroid feeding and general therapeutics. The volume closes with a somewhat limited bibliography of this subject, devoted almost entirely to French literature, and extending back over only the last four years. As a summary of our knowledge of these interesting conditions the book is of value, but does not contain, nor does it profess to contain, any original contribution to this important subject. That the time is ripe for such a contribution to medical literature, however, cannot be doubted.

IN THE YEAR 1800. By Samuel Walker Kelley, M.D. The Saalfeld Publishing Company, Akron, Ohio.

This volume forms a number of the Doctor's Recreation Series which we have already noticed in previous issues, and deals with sundry events occurring in the life of Dr. Jonathan Brush during the first year of the past century. It is in the nature of a historical novel, based upon a diary, and gives us a conception of medical practice and methods which were popular at that time, including Perkinism. To those who are fond of novels composed in part of fiction and truth with a touch of medicine, the present volume will prove very interesting.

STUDIES IN THE PSYCHOLOGY OF SEX. By Havelock Ellis. The F. A. Davis Co., Philadelphia, 1905.

We have at earlier times noticed in these pages the preceding volumes of this series. In the present book we are told that five volumes will probably complete the series, each one being sold separately. The present volume deals with the relation of touch, smell, hearing, and vision to sexual selection in man, and consists in literary and clinical investigation of the subject at issue. Those of our readers who are familiar with Ellis's previous works are also familiar with the fact that they are what might be called "plain tales from the hills." Doubtless there are many who will object to the publication of these facts, considering such publication unnecessary. On the other hand, there can be no doubt that from a scientific standpoint they possess very considerable value. It is hard to conceive that the subject of "ticklishness" and the "origin of the kiss" can require scientific

analysis, but those who will read these chapters will find they are nevertheless capable of such consideration. As with most works of this character, there is a curious mixture of scientific statement and quotation from poets more or less classical, and this gives a zest to the text which it might not otherwise possess.

TEXT-BOOK OF INSANITY. For Practitioners and Students of Medicine. By Dr. R. von Krafft-Ebing. Authorized Translation from the last German Edition, by Charles Gilbert Chaddock, M.D. With an Introduction by Frederick Peterson, M.D. Philadelphia: F. A. Davis Company, Publishers, 1904.

Physicians in general and many non-professional persons know Krafft-Ebing's "Psychopathia Sexualis." That book is forbidden fruit, and has hurt Krafft-Ebing's name.

The text-book of insanity is a distinct work, and has been a standard for a quarter of a century. A translation of it, wanted for many years, is now supplied by Dr. Chaddock, himself an authority on insanity.

The 1903 German edition of Krafft-Ebing's text-book contains several pages on dementia præcox, a form of insanity which seems very important at the present time. This translation does not include it. Essential facts about the mental disturbance accompanying some cases of multiple neuritis (Korsakoff's polyneuritic psychosis) are also omitted. On the whole the book is an excellent English rendering of a German masterpiece.

The fame of Krafft-Ebing's "Psychiatrie" probably rests mainly on its thorough analyses of mental states, its vivid descriptions, and its completeness; it is in fact a cyclopedia of insanity. Its fault, from our modern point of view, is that the small bundles, into which the subject is divided, are not rearranged and bound up in the newer conceptions. But Krafft-Ebing's clinical pictures are so true to life that his book will never be entirely discarded.

W. P.

DIE WIRKUNGEN VON ARZNEIMITTELEN UND GIFTEN AUF DAS AUGE. Handbuch für die Gesamte Ärztliche Praxis. Von Dr. L. Lewin and Dr. Guillery. II Band, mit 14 Textfiguren. Berlin, 1905.

We have had occasion in a previous number of the THERAPEUTIC GAZETTE to notice the first volume of this remarkable work, and express our admiration of its

scientific and clinical value. The second in all particulars is equal to its predecessor, and represents an amazing amount of research in its complete analysis of the literature of the subjects which it treats. Nothing of value in any language seems to have escaped the view of the accomplished authors. The book contains a full description, in so far as the eye is concerned, of the action of fungi, bacteria, and mycoses; of drugs which lower temperature and possess antiseptic properties—for example, quinine, salicylic acid, carbolic acid, boric acid, etc.; of the anthelmintics; of drugs by means of which the function of the heart, blood-vessels, and kidneys is altered—*e.g.*, digitalis, strophanthus, amyl nitrite, etc.; and of substances which have a direct or indirect mechanical action on the organ of vision—for example, the vesicants.

The entire work is well up to date, and the latest literature has been utilized, even such recently introduced drugs as stovain and isophysostignum finding place. The authors are much to be congratulated, and their labors have brought forth a work which must for a long period to come remain the standard one on the subjects with which it is concerned. G. E. DE S.

THE MEDICAL EXAMINATION FOR LIFE INSURANCE AND ITS ASSOCIATED CLINICAL METHODS. By Charles Lyman Greene, M.D. Second Edition, Revised and Enlarged. P. Blakiston's Son & Co., Philadelphia, 1905.

Some years ago we reviewed the first edition of this excellent book, which has now been out of print for more than two years. It is a work which should be in the hands of every one who is engaged in the examination of applicants for life insurance, and it contains in addition much information which is of great value to the general practitioner who may not be called upon except at rare intervals to make such examinations. The illustrations are valuable, and the methods described are those which are commonly resorted to in the physical examination of patients. Interesting chapters illustrating rejection of applicants for life insurance and the mortality of insured individuals illustrate the work. It is interesting to note that notwithstanding the prevalence of typhoid fever, it stands ninth in the list of diseases which cause death amongst the insured, tuberculosis, respiratory diseases, and nervous diseases far

outstripping it. Another interesting chapter is devoted to attempts to defraud life insurance companies, and still another to accident insurance. We do not see any advantage in the charts which illustrate the normal circulation, since these can be found in works on physiology, and hardly find a place in a book devoted to such a special subject. We cordially commend this book to those of our readers for whom it is especially prepared.

EYE, EAR, NOSE, AND THROAT NURSING. By A. E. Davis, A.M., M.D., and Beaman Douglass, M.D. The F. A. Davis Co., Philadelphia, 1905.

As the title of this book indicates, it is written primarily for the use of nurses, but will prove useful to students and general practitioners. The first chapter deals with the necessary requirements for special nursing of diseases of the eye, and with the anatomy and physiology of this organ. Brief considerations and descriptions of the commoner diseases of the eye then follow, chapters 5 and 6 dealing with remedies and their application to eye diseases. These chapters go further into the subject than is justified in a book for nurses. So, too, we cannot see any use in describing in such a book plastic operations. A similar scheme is found in those chapters devoted to the nursing of diseases of the ear and of the nose and throat. Here, again, the amount of therapeutic advice which is offered is in excess of that which is required by the nurse. The illustrations are useful. To the nurses who expect to assist practitioners in special branches of work the book will doubtless prove serviceable. It certainly cannot be criticized on the ground of being incomplete. It is a small octavo of 316 pages.

PRACTICAL PEDIATRICS. By Dr. E. Graetzer. Translated with Notes and Additions by Hermann B. Sheffield, M.D. The F. A. Davis Co., Philadelphia, 1905.

This is a small octavo volume of about 550 pages, which is supposed to be, in the language of the translator, a miniature encyclopedia of the medical and surgical diseases of infancy and childhood. The object of the author is, therefore, a large one, but the space which he has allowed himself can scarcely be considered adequate for a sufficient consideration of all the subjects which naturally need attention. In the first part of the book, which

is composed of 19 chapters, the author considers the care of the newly-born, infant feeding, diagnosis of diseases of the newly-born, congenital malformations, diseases of the nose, ear, and throat, of the digestive system, and the acute infections. These chapters are followed by others upon diseases of the respiratory and circulatory systems, diseases of the glandular system, and diseases of the eye, skin, bones, and muscles. The last 80 pages of the book deal with the *materia medica* of childhood, including hydrotherapy, massage, climatology, diet, palatable prescribing, and what the author calls "*materia medica*." Many practitioners will doubtless find this section of the book very useful. The volume cannot be considered as an adequate presentation of the diseases of childhood, and it cannot be recommended to a student for this very reason; but, on the other hand, it offers interesting and valuable information to the practitioner who wishes to pick up practical points from the experiences of its author and translator, and as such a book it can be recommended.

THE OPHTHALMIC YEAR-BOOK. By Edward Jackson, A.M., M.D. The Herrick Book and Stationery Co., Denver, Colorado, 1904.

In an octavo volume of 260 pages, including an index and a copious bibliography, Dr. Jackson has summed up the advances made in ophthalmology during the year 1904. He is so well known as a contributor to ophthalmological literature, and his work is so reliable, that nothing more need be said concerning the appearance of this volume. The text consumes about 200 pages; the remaining 60 are taken up with the bibliography and index.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Lectures and Specially Prepared Articles. Edited by A. O. J. Kelly, A.M., M.D. Volume II. The J. B. Lippincott Co., Philadelphia, 1905.

The first article of this volume deals with the important subject of the excessive use of drugs in the treatment of chronic diseases, with special reference to medicinal intoxication. A good clinical lesson can be learned in the reading of this lecture, which is by George D. Hayem, of Paris. Another therapeutic résumé of interest is one upon radium by Dr. Metzenbaum, and still another is upon the

treatment of patients who seem desperately ill as the result of accident, hemorrhage, or infection, by Dr. Lejars, of Paris. In the section devoted to medicine we find an interesting lecture upon the incidence of gout in the United States by Sir Dyce Duckworth; and in the section upon surgery articles upon curvature of the spine by Dr. Bradford, nerve anastomosis by Dr. Young, and another upon gastric surgery by Dr. Bolby. A concluding chapter of interest is upon recent investigations concerning the pathology of infectious diseases by Dr. Warthin, and another upon the etiology and pathology of amebic infection by Dr. Craig, of the United States army.

MANUAL OF GYNECOLOGY. By D. Berry Hart, M.D., F.R.C.P.E., F.R.S.E., and A. H. Freeland, M.A., B.Sc., M.D., F.R.C.P.E., F.R.S.E. Sixth Edition. Chicago: W. T. Keener & Co., 1905.

The sixth edition of this work on gynecology attests and demonstrates anew, if this were needed, the unceasing activity, the steady progress, and the growing needs of the gynecologist. There are probably more excellent text-books upon this branch of surgery than are to be found concerning any other specialized work.

In place of concentrating upon treatment, the authors have preserved intact their early respect for anatomy, physiology, and pathology, believing that these form the foundations of good clinical work.

The first seven chapters are practically devoted entirely to anatomical and physiological considerations. There follows a section upon physical examination of the female pelvic organs, describing the instruments commonly used, and their applications. There is included also a chapter upon antisepsis and asepsis. This latter chapter is hardly in sufficient detail to make it of any benefit to aught but the experienced practitioner.

The second part of the book is devoted to diseases of the female pelvic organs, including under this heading pelvic peritonitis and cellulitis. It is satisfactory to note that the subjects are discussed under the headings of pathology, etiology, symptoms, diagnosis, prognosis, and treatment.

The appendix is devoted to abdominal

section, electricity in gynecology, systematic treatment of nerve prostration, massage, case-taking, classification of diseases of women, and sources of gynecological literature.

The book is illustrated with 12 lithographs and 359 woodcuts, many of them anatomical and pathological. They lack both the shamelessness and finish which characterize the illustrations of the best modern gynecologies.

It may be said of this work that it presents in a comparatively small space an extremely comprehensive résumé of the science of gynecology as it is now practiced, which makes it probably of more service to the student and general practitioner than text-books which have more or less sacrificed the foundations on which the science is built for the succinct presentation of treatment.

INFLUENCE OF GROWTH ON CONGENITAL AND ACQUIRED DEFORMITIES. By Adoniram Brown Judson, A.M., M.D. Illustrated. New York: William Wood & Company, 1905.

The title of this book is somewhat misleading, since it would suggest to the reader a purely scientific study, whereas the work is really a thoroughly practical, modern treatise upon certain phases of orthopedic surgery. The reason for the title is doubtless incident to the fact that Judson believes that prevention and cure are to be found in so managing the case and equipping the patient that natural growth will be the true factor in recovery. Andry's designation of orthopedics as the art of making a child grow straight is aptly quoted, as explaining the title.

The first chapter is devoted to congenital clubfoot. The author calls attention to the fact that a baby gains in length from 7 to 9 inches the first year, in which period the deformity becomes more obstinate with each added month, but if the foot is held in a good position growth introduces symmetry and facilitates restoration. The time for beginning treatment is the hour of birth. In this a simple plaster and metal brace are factors. The advantage over plaster of Paris is the fact that on two days of each week freedom may be given to the foot, supplemented by manipulations, in order to maintain flexibility. When the child begins to walk it is needful to apply braces, which throws the foot slightly in valgus.

There is an extremely interesting chapter upon deformities and disabilities caused by infantile paralysis.

The treatment of tuberculous joint disease should begin with intelligent expectation. Special warning is given against the fear of ankylosis. Since rest is the most efficient remedy for inflammation, fixation is to be utilized persistently.

The details for the application of hip splints are given so fully as to enable any practitioner to employ them in an efficient manner.

There is an instructive section upon limping or lameness, and the method of acquiring a correct rhythm.

The book closes with chapters upon Pott's disease and lateral curvature. It is intelligently and adequately illustrated, and the author presents modern and conservative views on the cure of the common orthopedic affections.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.A., M.D., F.R.C.P.

One of the burning questions of the day has been under discussion this month at the Society of Medical Officers of Health, namely, the reform of the milk supply. Dr. McCleary, who introduced the discussion, spoke somewhat pessimistically of what has been already done in the way of civic sanitation. He thought that much had been accomplished in the way of improved drainage, regulation of offensive trades, abatement of pollution of rivers, and so forth, but he said "in a country whose capital is still supplied with something like filtered sewage as drinking-water, it is obvious that there is much yet to be done to secure civic cleanliness." He regarded, however, the problems of personal hygiene as those specially calling for solution at the present time, and of these he thought there were three specially urgent: (1) infantile mortality; (2) school hygiene; (3) milk supply. This last has been represented as a matter chiefly of cowshed construction and sanitation; but such a view is altogether too narrow. Perhaps indeed it would be a good thing if cowsheds were abolished

altogether, and cows allowed to live a natural life in the open air. In a surgical operation the cleanliness of the operator is even more important than a clean theater. So with milking; so long as the milkers are dirty in their habits, the milk will continue unfit for use. For supplying the consumer with pure milk four conditions are essential: (1) healthy cows; (2) scrupulous cleanliness of cows, milker, and utensils; (3) rapid cooling of the milk directly after milking down to 40° F. or lower; (4) immediate bottling of the milk directly after cooling, and storage at a low temperature until the milk is delivered to the consumer. People are apt to think that a clean-looking shop is a guarantee for clean milk, but this is a fallacy; the milk is polluted miles away, before it leaves the farm. Moreover, such methods as pasteurization, sterilization, and centrifugalization are merely make-shifts which ought to be abandoned when the faults which necessitate them are eradicated. Dr. McCleary made a timely protest against the present-day idea that education, and especially the teaching of hygiene in our schools, is going to do away with defective milk sanitation and all other sanitary defects. It is not education but efficient administration by some authority equipped with proper powers which is going to set such evils right. But in this case the area to be dealt with is so wide, the range from which the milk supply of the cities is drawn is so extensive, that no system of mere inspection can ever be successful. It is suggested as an alternative that the municipal authorities should take over the management of the milk supply entirely, or, what would be more readily practicable, that they should start a limited number of centers for supplying milk from dairies under their own management, and so create a model for a hygienic milk supply.

No doubt only in this way can the dirty man be displaced by the clean man, and an effective limitation be put to the dishonesty of "the adulterating scoundrels who now infest the milk trade." But Dr. McCleary evidently assumes that the principle of municipal trading is above question; he disregards the outcry of those who say that such municipal methods are the ruin of private enterprise.

The Pathological Society but seldom deals with matters of interest to the pure

clinician, but a few days ago it received an interesting communication from Dr. Lorand, of Budapest, on certain functions of the so-called blood glands, including also the sexual glands. There are few more puzzling cases from the point of view of treatment than those of obesity. How many a patient has been made miserable for months together by a diet which might have scared an ascetic in the middle ages! But now, *nous avons changé tout cela*, at least if Dr. Lorand's views prove correct: a couple of tablets two or three times a day, and the afflicted one may sit down to good square meals and feel himself growing less obese each day. The thyroid gland, the pituitary body, the ovary, the testes, all produce some internal secretion which promotes oxidation; exhaustion of any of these glands, or any other cause which arrests its function, means diminished internal secretion, and so diminished oxidation in the body. Diminished oxidation results in deposit of fat in the subcutaneous tissue and elsewhere. Hence it is that the cretin or the person with acquired myxedema becomes fat; the result of castration in either sex is increase of fat; exhaustion of the sexual glands, sometimes after marriage, often at the menopause, is followed by more or less obesity; some of the most colossal degrees of obesity are seen with tumors of the pituitary body. The usefulness of thyroid extract in reducing fat in some cases is now well recognized, but experiment shows that extracts of the sexual glands are of value also; and sometimes administration of ovarian extract in addition to thyroid greatly increases the fat reduction. It might be supposed that for obesity in the female ovarian extract would be most valuable, and for males testicular extract. But this, according to Dr. Lorand, is not so; either may be used for both sexes, and of the two ovarian extract would seem to be more effectual than testicular. It is dreadful to think that the fat boy in *Pickwick* might have been lost to posterity had he lived in the days of glandular extracts!

Dr. Lorand also pointed out the close relation which exists between mental changes and these various glands. We all know that disease of the thyroid causes dulness of mind; changes in the sexual glands also are often accompanied with mental disorder—puberty, pregnancy,

lactation, the menopause, are notoriously times of mental instability. Dr. Lorand was even inclined to base a diminution of criminal responsibility on this relation, a rather widely inclusive plea, one would think, in the case of women.

Dr. Aldren Turner read a paper recently at the Medico-Chirurgical Society on the relation of stigmata of degeneration to prognosis in epilepsy. The particular stigmata mentioned were facial deformity and asymmetry, deformities of the hard palate, the ears, and the teeth. Females were found to show such stigmata more often than males, and therewith were also less often mentally affected; persons who had shown epilepsy from early childhood particularly often showed stigmata. The main bearing upon prognosis appeared to be the close association between these stigmata in the epileptic and mental degeneration; but the absence of these deformities did not make the prognosis otherwise favorable, for epilepsy seemed to be often just as persistent in cases where no stigmata were to be found. An obvious criticism on this paper was made by Mr. Stephen Paget: that stigmata in epilepsy are merely accidental except in so far as they indicate a more or less general degenerative state; facial asymmetry is extremely common in persons perfectly healthy in every way; and most of the stigmata are to be met with almost as often in the London poor in general as in cases of epilepsy.

The treatment of cancer of the breast is a continually recurring problem, and although excellent results have followed removal of the breast and the axillary glands, it is evident that in some cases results have been so unsatisfactory that surgeons are not yet agreed as to the advisability of this operation in all cases. It has even been stated that to remove the axillary glands may be to encourage spread of the disease. An alternative method of treatment is oöphorectomy, and as to the value of this operation there is some difference of opinion; there does, however, seem to be considerable evidence that removal of the ovaries has some influence in restraining malignant growth in the breast. During the present month two cases were shown after this treatment at the Medical Society of London: in one Mr. Bruce Clarke had performed this operation five years ago; in the other Mr.

Waring had operated, and the patient had been relieved of pain and the growth in the breast had diminished in size. It is objected to this treatment that its results are transient, but a survival of five years is at least satisfactory.

The medical journals have been discussing the question which is absorbing all interest at Cambridge University just now, whether Greek shall be compulsory on all students or not. Apparently there is but little agreement with Locke, who, I think in his "Conduct of the Understanding," wrote: "Physicians should be skilled in the Greek, for their great master Hippocrates wrote in that tongue." So great is the interest in this question that on the days when voting on the subject is to take place at Cambridge next week, special arrangements are to be made by the railways to carry the crowd of voters thither.

PARIS LETTER.

By R. H. TURNER, M.D. (PARIS).

At a recent meeting of the Society of Surgery Dr. Schwartz spoke enthusiastically of the use of the Heitz-Boyer apparatus for fracture of the humerus. Hennequin's apparatus had first been tried, but radiographs which were taken showed that the results were unsatisfactory. Dr. Schwartz presented two patients treated in this manner, and with the best results. Dr. Quénu also presented three patients who had been treated in like manner with perfect success. Lastly, Dr. Broca cited a case in which the Hennequin apparatus proved insufficient. The fracture was reduced under chloroform and a simple plaster cast applied. Dr. Lucas-Championnière, the great advocate of massage, remarked that he could show the assembly a number of patients who had suffered from fracture of the humerus and were cured by massage without any apparatus.

In the November number of the *Archives of Pharmacodynamics and Therapeutics* Vaelar de Plavec makes a critical analysis of the principal researches on the diuretic action of theobromine, and cites personal observations. He concludes that theobromine is a cardiac stimulant and not primarily a diuretic. This drug increases

the contractility of the heart muscle, and at the same time has an action on the blood-vessels. The blood-pressure is thereby diminished, and prevents one noting the increase in the heart action. The diuretic action is due to a vasodilatation of the capillaries of the kidney, and an increase in the action of the heart.

In a number of the Russian *Vratch* Baldowsky describes the results he has obtained in the treatment of eclampsia by the use of thyroïdin. In 1902 Nicholson reported four cases of this disease which were cured by the use of thyroid extract without its being found necessary to remove the fetus. Baldowsky has been able to confirm the efficacy of this treatment in two cases. In one case eclampsia came on in a multipara who was seven months pregnant. The first day four tablets of 30 centigrammes of thyroïdin were given, as well as narcotics. The attacks ceased. The treatment was continued two more days, two tablets of 30 centigrammes being given daily, and the patient recovered. Two weeks later there was a recurrence, which was cured in like manner. In a second case a primipara was taken with convulsions at the beginning of labor. Thyroïdin was used without any other drug. The attacks ceased after two tablets of 30 centigrammes had been given. The labor ended normally.

In a medical journal of Bordeaux there is indicated a most simple method of suppressing the vomiting seen after chloroformization. The patient is given a glass of cold water an hour and a half before the operation, and this is repeated every half-hour until just before beginning operation. This was tried for a number of operations lasting from ten to twenty-five minutes, and in no case was there any vomiting seen after the operation.

In the same number of the above mentioned journal L. de Busscher published an article on the use of permanganate of potash as an antidote of morphine. Heymans and Van de Calseych had already shown that, injected hypodermically, this substance had no antitoxic effect, and experiments carried out in Heymans's laboratory have likewise shown that, taken by the mouth, it has no effect. Busscher considers that this question is definitely solved, and that it can be said that permanganate of potash is no antidote of morphine.

At a meeting of the Society of Surgery, held last December, there was a most interesting discussion on the treatment of foreign bodies in the esophagus. Dr. Kirmisson, professor of infantile surgery, advocated the use of the blunt hook, which he had constructed several years ago. He had employed this instrument a number of times with perfect success, in some cases even three weeks after the accident. Dr. Pelizet considered that the basket of Graefe is a useful instrument when judiciously employed. Dr. Segond described a case where de Graefe's instrument had pushed a piece of money down to the cardia. It was found necessary to perform gastrotomy to remove the foreign body. Drs. Sebileau and Faure considered it best to perform esophagotomy after the third or fourth day.

Drs. Gallois and Courcoux have been studying the effects of oxygenated water on the secretion of the gastric juice, and have found that it increases the amount produced. There is usually a small amount of hydrochloric acid in the water, but besides this a certain portion is undoubtedly produced by the direct action of the oxygenated water. As a result a small amount of this product is sometimes quite beneficial in the vomiting of pregnancy and in tuberculous patients. Milk which is charged with one or two grammes of the 12-volume solution for 100 or 200 parts of milk acquires properties similar to those of kephir. It calms vomiting and diarrhea, and is easily taken by children. It is moreover a strong antiseptic. It would therefore be more specially indicated in hypopeptic dyspepsia with abnormal fermentation.

According to Dr. Noiré, who is one of the inventors of the Sabourand-Noiré radiometer, all superficial cancers of the skin should be treated by the x -rays, and an important fact is to measure the quantity of x -rays used. For this the pastilles of Holz knecht may be used, or else the Sabourand-Noiré radiometer. He does not believe it well to produce radiodermatitis, and therefore he recommends not making more than one application every two weeks, as erythema may only come on after thirteen days. It is also well to not use more than 5 H units, or the tint B of his radiometer, as in certain regions even this dose may cause erythema. It is necessary to give five or six treatments.

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Original Communications.

THE TREATMENT OF RETRODISPLACEMENT OF THE UTERUS; A CLINICAL STUDY BASED UPON THE RECORDS OF 653 CASES.¹

By B. C. HIRST, M.D.,

Professor of Obstetrics in the University of Pennsylvania.

Several considerations suggested this subject for the paper which your branch of the County Medical Society has asked me to read. In a card catalogue of 6000 cases of diseases of women, prepared from my private case-books and the records of

the indoor services of the Howard Hospital and the University Hospital, there are more than 1400 records of plastic operations for injuries of the genital canal at all periods, and 653 records of retroversion of the uterus. Thus it appears from these statistics that the two most frequent pathological consequences of childbirth are also the two commonest diseases of women. In these, as in most of the diseases of women, which are usually the consequence of parturition, the gynecologist who has had ample experience in both branches of the subject—obstetrics and diseases of women—is most competent to deal with all phases of their treatment. The advantage of such training has not been as generally recognized in America as in other countries; hence

¹Read before the Kensington Branch of the Philadelphia County Medical Society, March 7, 1905.

some views on retrodisplacement of the uterus are prevalent among specialists and physicians in general which seem to me erroneous.

It is also an advantage to have a retrospect of many years in reviewing the results of treatment. Some of the cases to be reported have been under observation for more than fifteen years.

The Operative Treatment of Retroversion.—Five hundred and six of the 653 recorded cases have been subjected to operative treatment: 409 suspensions, 76 Alexander operations, and the rest divided mainly among the Gilliam-Ferguson and the Richelot-Dolérès operations. A few experiments were made with vaginal fixation, shortening the uterosacral ligaments, and intra-abdominal reduplication of the round ligaments. In two cases out of eighteen an incarcerated retroflexed gravid uterus was liberated by abdominal section and intrapelvic manipulation.

At least three important practical questions must occur to the general physician when he considers this part of the subject with due regard to his patient's welfare: (1) Is the operative treatment satisfactory, and is it destined to replace mechanical and all other treatment of retrodisplacement of the uterus? (2) Is the physician justified in urging this treatment? (3) What form of operation has the least risk, gives the patient the greatest security against recurrence, promises the least interference with subsequent child-bearing, and affords the greatest symptomatic relief?

If it is allowable to answer these questions according to convictions based on personal experience, I should reply categorically as follows:

1. The operative treatment of retroversion will never entirely displace other modes of treatment. Many cases are cured without operation; the majority of cases must be managed temporarily at least by a pessary; and there is a small proportion of cases in which an operation is unjustifiable. It is likely, however, that the large majority of all such patients in the future will select the operative treatment. The records of specialists already show this to be the case. There is no better proof that patients and their physicians, from statements of their

friends and from personal observation, are becoming convinced that the most satisfactory relief of symptoms is afforded by this means. Otherwise there would not be a growing disposition voluntarily to select this mode of treatment in preference to the indefinite use of a pessary and the never-ending medical attention which it often requires.

2. The operation for retrodisplacement is one purely of election. The condition is not dangerous to life, only detrimental to health and comfort. The case can almost always be managed in another way. It is not justifiable therefore to urge the operative treatment as the only means of relief. The best course for the physician is to explain the situation frankly, stating the relative advantages of the different plans of treatment, and allowing the patient to exercise her own will. There are many cases, however, in which the physician may advise the operative treatment as preferable to any other: in young unmarried women, in whom the long-continued use of a pessary is most objectionable; in working women, who often find a pessary unendurable if they must do much work in the erect posture; in cases of rectocele and cystocele requiring plastic surgery; in adherent retroflexions that have resisted attempts at reposition; and in the subjects of neuroses, including epilepsy, in whom the radical cure of the pelvic disorder may be followed by entire relief of the nervous symptoms. On the contrary, it may be the duty of the physician to discountenance an operation.

A patient was brought to me recently from another city for the operative treatment of an adherent retroflexion of the uterus; but she had exophthalmic goitre. Sanderson¹ has collected six operations, other than strumectomy, complicated by this disease. William J. Taylor and the Mayos have had two more. There were five deaths among the eight cases. It is obvious that an operation should not be advised, even under local anesthesia, for mere discomfort, if its risk is really so enhanced.

3. The answer to the third question is naturally of greatest interest to the specialist; but the general physician must often

¹*American Medicine*, Feb. 4, 1904.

feel the need of all the information he can obtain on the subject. There is at present a difference of opinion among the advocates of the fifty odd operations proposed for retroversion. To discuss the merits and disadvantages of the various operations would be impracticable in a paper of this scope.

Considerable experience has given me the following opinions, uninfluenced, I believe, by ill-advised prejudice for or against any special operation:

The best operative treatment for retrodisplacement of the uterus is the modified Alexander operation: opening the inguinal canal, pulling out four to six inches of the round ligament, and fixing the thick, strong proximal portion in the inguinal canal. It has no mortality; it leaves the pelvic organs in a normal anatomical position; it has the smallest proportion of recurrences and by far the least percentage of difficulties in subsequent pregnancies. It is interesting to note that its opponents are those who have had the least experience with it; its advocates those who have had the most. But it is not available unless the retroflexion is uncomplicated. Therefore it cannot be utilized in more than a sixth of the cases. Moreover, the round ligament may be no thicker than a match stick at the uterine cornu, and so attenuated in the inguinal canal that it cannot be found or cannot be utilized. This was the case in three out of seventy-nine operations in my statistics, in which the attempt to shorten the round ligaments in the groin was abandoned, and the uterus was suspended through an abdominal incision.

Suspension of the uterus has been hitherto the most generally available and useful operation. The proportion of failures has been small; there were three recurrences in cases which I had the opportunity of examining some time after the operation, and only one case in which difficulty occurred in a subsequent gestation, and that not of a serious character. But there is a natural feeling that this operation is not ideal, and that it will be supplanted by something better.

The Gilliam or the Richelot-Dolérus operation seems at present most likely to replace suspension. The latter is easily and quickly performed; it sustains the uterus satisfactorily in a good position; but whether it stands the test of time and

occasions no difficulty in subsequent child-bearing, the future must determine.

Reduplicating the proximal portions of the round ligaments and depending on the weak distal ends for support is not reliable, is not founded on a good principle, and probably will not have a permanent place among the operations for retroflexion. Shortening the uterosacral ligaments frequently neither restores a uterus to normal position nor keeps it there. Judging by trials both on the living and dead body, it seems to me the most useless of all the operations for this condition.

Vaginal fixation has given the largest proportion of failures and, if it has succeeded, the highest percentage of difficulties in subsequent gestations.

The only operation in this category deserving serious consideration is Alexandroff's¹ procedure of utilizing the cardinal ligaments by doubling and fastening them in front of the cervix. I have had no experience with it, but the proposition is plausible.

The Cure of Retroflexion Without Operation.—The two kinds of uterine retroflexion most amenable to treatment without operation are the acute displacements in consequence of a sudden jolt or jar, and the displacements occurring during the six weeks of the puerperium. The first variety should be treated by reposition without the use of a pessary. If the patient is a young unmarried woman the uterus should be replaced under anesthesia. Three examples may serve to illustrate what can be accomplished by this treatment:

A young woman, in consequence of a fall from the top of a coach, developed pelvic pain and metrorrhagia, with some fever. A pelvic examination under anesthesia revealed a complete retroflexion. The uterus was replaced without support. The symptoms immediately subsided. An examination of this patient four years later showed that the uterus remained in good position.

A young girl fell down a flight of steps. The subsequent symptoms indicated a pelvic examination under anesthesia. A complete backward displacement of the uterus was found and corrected. In an

¹*Centralblatt f. Gyn.*, p. 762, No. 25, 1903.

examination fourteen months later the uterus was still in good position.

A married woman, the mother of three children, after a vigorous and successful tennis match of a week's duration, was forced to bed with such severe pelvic pain that her physician was obliged to give morphine liberally. I had examined her after each childbirth and knew that the uterus had been in good position. On this occasion I found a complete retroversion. The uterus was replaced, but no support was applied except boroglyceride tampons for a couple of days. The pelvic pain was immediately relieved. An examination nine months later showed that the uterus had remained in good position.

The treatment of *retroflexion in the puerperium* may be thus outlined: An examination should be made in the beginning of the fourth week when the patient begins to walk about her room. If the uterus is turned over backward it should be replaced, and the knee-chest posture should be assumed twice a day for the next three weeks. Pessaries and tampons are contraindicated before the sixth week. A second examination should be made at the end of six weeks (three weeks after the first examination). If the uterus is found in good position, as it often is, two more examinations should be made at the end of eight and twelve weeks respectively. If the normal position is still maintained, the patient is dismissed, cured.

If examination at the end of six weeks from childbirth reveals a retrodisplacement that had not existed at the first examination in the fourth week (a frequent occurrence), or if the retroflexion discovered in the fourth week is not corrected by postural treatment, the uterus should be replaced and a suitable pessary introduced. The patient is then placed in charge of a skilful masseuse for a course of abdominal massage and Swedish movements lasting eight weeks. The pessary is then removed. An examination is made at the end of two, six, and twelve weeks. If the uterus remains in a normal position at the last examination the patient is probably cured.

Three examples may be cited to show what can be accomplished by this treatment: A patient who has had three children under my care suffered a retrover-

sion after each childbirth. Each time it was cured by an eight weeks' course of treatment, and the uterus remained in good position until the next delivery. The average time between the births has been two years.

A patient who has been delivered four times under my observation developed a retrodisplacement after the first childbirth. She was treated eight weeks with a pessary, massage, and Swedish movements. Her uterus has remained in good position ever since, a period of six years, in spite of three subsequent deliveries.

A patient was referred to me for a final examination six weeks after childbirth, and an adherent retroflexion was found. The problematical success of any but the operative treatment was pointed out, but the patient and her husband insisted that an effort be made to effect a cure without operation. The vagina was packed with wool tampons every other day for four weeks. Under this steady pressure the uterus assumed a normal position and the adhesions disappeared. A pessary was then used for eight weeks, with massage and Swedish movements. The uterus remained in good position without support at my last examination, more than two years after the removal of the pessary.

It is even possible to cure a retroversion that has become chronic and is complicated by pelvic adhesions, without operation—by tampons, a pessary, and abdominal massage. The chances, however, are against success, the treatment is a strain on the patient's nerves, and usually a choice must ultimately be made between enduring the symptoms of the retrodisplacement or submitting to operation. But there are a few cases on my list in which a permanent and perfect cure was effected in this way.

A curious exception to the general rule is found in four records out of the total number, to the effect that a retroversion existing before impregnation was cured by pregnancy. Ordinarily each successive pregnancy weakens the uterine supports and makes the permanent cure by anything short of an operation more improbable.

In eight cases a long-standing retrodisplacement was permanently cured by a plastic operation on the anterior and posterior vaginal walls, and the use of a pessary for a few weeks.

The Indications for a Pessary.—One might conclude from current medical literature, and from the scanty instruction medical students receive to-day in their use, that pessaries really deserved the fate to which they were consigned by the husband of a patient who had been cured by operation—to be hung as an exhibit in an archeological museum. But no one can deal successfully with large numbers of these cases, no one can retain a considerable proportion of his patients, who has not mastered the art of selecting and inserting a pessary and of treating the patient properly while she uses it.

As already stated, pessaries are indicated for displacements following childbirth after the conclusion of the puerperium, at least in women of the wealthy, leisure class. A cure is often effected in these cases. If after appropriate treatment for a period of at least eight weeks the uterus will not remain in good position without support, the patient should be offered the choice of radical cure by operation or the indefinite use of a pessary. The majority of my patients have rejected the proposition to operate at this time and have elected to wear a pessary. But most of them, after a trial of the artificial support for a year or two, prefer operative treatment. If immediate operation is urged on such patients in the first place they reject the advice. A certain proportion of patients—steadily diminishing, I think—refuse operation absolutely. Some women on my list have been coming regularly to the office for more than fifteen years. If they understand clearly that at any time they might be radically cured and nevertheless deliberately choose the indefinite use of a pessary, they are naturally entitled to select the course they prefer. It is a confession of weakness on the part of the specialist if he cannot make such patients perfectly comfortable with a pessary.

Finally there are conditions, such as disease of the heart and kidneys, Graves's disease, leukemia, etc., which make any but urgently necessary operations quite unjustifiable. Such patients can only be treated with a pessary. Therefore in the large majority of all cases of retroflexion, which usually follow childbirth, a pessary is required at least temporarily. It must be used also in women who will not or should not be operated on. Consequently

the competent specialist and the general physician must constantly employ it. Such being the case it is a pity that the younger generation of physicians receive such imperfect training in its use and such curiously incorrect instruction as to its insertion and care as is found in many modern text-books.

The following rules should be observed in using pessaries for retroflexion:

The best models are the Hodge, the Smith-Hodge, and the Thomas.

It is better to have a large assortment of different sizes and shapes than to attempt to mold a pessary to suit the individual case.

The best material is hard rubber. No soft-rubber pessary of any kind should ever be used. They become indescribably foul in a day or two. Aluminum is a good material, but expensive.

The smallest pessary that will maintain the uterus in position should be used.

The uterus must be in perfect position before the pessary is inserted.

A pessary should be inserted with the broad posterior bar in the oblique diameter of the vagina, so that a comfortable distention of the vaginal entrance is accomplished by utilizing the opposite posterior and anterior sulci.

A right-handed man will find it easier to press downward and outward the right posterior vaginal sulcus with the forefinger of his left hand and to insert the pessary almost upside down, rotating it after it has entered the vagina, and then slipping the posterior bar behind the cervix with his forefinger.

For the reposition of the uterus and the insertion of the pessary the dorsal decubitus is usually best. The knee-chest posture is sometimes required for the reposition of the uterus, but not for the insertion of the pessary.

The pessary should be removed and cleansed every eight weeks, and the posterior vaginal vault should be inspected through a speculum. If it is inflamed or ulcerated the pessary should not be reinserted for at least two weeks.

A vaginal douche of boracic acid solution should be taken three times in the month—on two successive days after the cessation of menstruation, and once midway between the periods. Daily douching is unnecessary and sometimes harmful.

THE PASTEUR TREATMENT FOR RABIES ADMINISTERED AT THE PATIENT'S HOME.¹

BY MYER SOLIS-COHEN, A.B., M.D.,

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The majority of physicians are familiar with the Pasteur treatment for rabies, as conducted by the Pasteur institutes; but not many are aware that this treatment may be carried out by any physician at the patient's home. Several months ago I administered the Pasteur treatment at their homes to two persons who had been bitten by a rabid dog.

In a series of communications² to the French Academy made in 1884, 1885, and 1886 Pasteur announced his discoveries as to the nature of rabies and described his method of treatment.

The virus is found principally in the saliva and in the central nervous system of rabid animals. Infection occurs ordinarily through the saliva, which enters the wound made by the animal's teeth. Bites on exposed parts of the body, therefore, are more dangerous than bites through clothing, as the saliva may be wiped off by the clothing. The virus travels along the nerve trunks to the spinal cord, and thence to the medulla and brain. Consequently, the most dangerous wounds are those in parts richly supplied with nerves, namely, the head and face, and next the hands. Between the bite and the appearance of the first symptoms a period of incubation intervenes, its length depending upon the amount and strength of the virus inoculated, as well as upon the location of the bite. In man it averages forty days.

Animals that have died of rabies show destructive changes in the peripheral ganglia of the cerebrospinal and of the sympathetic nervous systems, these changes being especially marked in the plexiform ganglion of the pneumogastric nerve and in the Gasserian ganglion. The

normal histologic picture shows each nerve cell enclosed in a capsule composed of a single layer of endothelial cells. But in animals that have died of rabies a proliferation of these endothelial cells is seen, with destruction of the normal ganglion cell, which is replaced by a collection of round cells. It is by observing these changes in an animal that has died of the disease that a positive diagnosis of rabies can be made. These changes, however, are of slow development, and in order to permit them to occur the animal should be allowed to die from the disease. It should not be killed, as in that case the changes may not be found.

Pasteur inoculated rabbits with the virus of rabies of the streets, which ordinarily will produce symptoms in these animals in from three to four weeks. He was able to increase the virulence and shorten the period of incubation by inoculating the rabbits in series, one from the other. After a hundred such passages the rabbits died within six or seven days after inoculation. No further increase of virulence could be obtained. The virus thus obtained is termed "fixed," and is used in preparing the vaccine. On the other hand, the virus may be attenuated and even destroyed by exposure to light or by drying. This latter method is used in preparing the vaccine for the Pasteur treatment. Upon the death of a rabbit inoculated with "fixed" virus, the spinal cord is removed uncontaminated, cut into three equal parts, and suspended by silk threads in a large bottle which has an opening near the bottom. Both openings are plugged with cotton, to allow the free passage of air, and on the bottom of the bottle is spread a layer of potassium hydroxide. When kept in the dark under these conditions at a temperature maintained at 23° C., the cords gradually lose their virulence, losing it entirely in about fifteen days, and retaining but a very slight amount when kept for fourteen days.

The Pasteur treatment is preventive, not curative. Instituted soon after inoculation, it produces an active immunity that antagonizes the morbid process during the period of incubation. Thus the development of symptoms is prevented. After symptoms have appeared, treatment is of little avail.

¹Read before the Philadelphia County Medical Society, Feb. 22, 1905.

²Pasteur: "Le Traitement de la Rage." Paris, 1886.

The treatment takes from fifteen to twenty-one days, depending upon the abundance of the nerve supply to the part bitten. Beginning with the weakest virus—an emulsion of a cord that has been dried for fourteen days—daily inoculations are made, under aseptic precautions, with cords of increasing virulence. In the ordinary course of eighteen injections the following doses are usually given:

First day, a mixture of 3 Cc. of 14 days' cord and 3 Cc. of 13 days' cord; second day, a mixture of 3 Cc. of 12 days' cord and 3 Cc. of 11 days' cord; third day, a mixture of 3 Cc. of 10 days' cord and 3 Cc. of 9 days' cord; fourth day, a mixture of 3 Cc. of 8 days' cord and 3 Cc. of 7 days' cord; fifth day, 2 Cc. of 6 days' cord; sixth day, 2 Cc. of 5 days' cord; seventh day, 2 Cc. of 5 days' cord; eighth day, 2 Cc. of 4 days' cord; ninth day, 1 Cc. of 3 days' cord; tenth day, 2 Cc. of 5 days' cord; eleventh day, 2 Cc. of 5 days' cord; twelfth day, 2 Cc. of 4 days' cord; thirteenth day, 2 Cc. of 4 days' cord; fourteenth day, 2 Cc. of 3 days' cord; fifteenth day, 2 Cc. of 3 days' cord; sixteenth day, 2 Cc. of 5 days' cord; seventeenth day, 2 Cc. of 4 days' cord; eighteenth day, 2 Cc. of 3 days' cord.

During the course of the treatment the patient's bowels should be kept freely open and alcoholic excesses should be avoided.

The injections, as a rule, produce no constitutional symptoms. Sometimes the patient complains of drowsiness, or, on the other hand, of nervousness and disturbed sleep. The local symptoms vary in different individuals, being marked in obese or alcoholic persons.

Should persistent or marked inflammation occur at the site of puncture, it should be treated as any ordinary cellulitis—with an ice-bag, antiseptic dressing, and similar measures.¹ If no symptoms have developed two weeks after the cessation of all treatment, the patient is considered out of danger.

The Department of Health of the City of New York has a Pasteur Institute which possesses the confidence of the medical profession. In addition to administering the virus at the institute in New York City, this department undertakes

the Pasteur treatment at a distance, mailing the virus each day by special delivery. Upon its arrival the virus should be put on ice until used, and should be injected as soon after its arrival as practicable.

The New York Health Department is guided in arranging the course of treatment for the individual case by the following information, which is required to be given as soon as possible: First, name and age of patient; second, location of bite, date and severity of bite, with its treatment; third, any information bearing on the diagnosis in the case of the animal inflicting the bite; fourth, a brief report on the patient's condition two weeks after the end of treatment.

On November 19, 1904, a man, aged 61 years, and his son, aged 15 years, were bitten by a dog which presented the clinical symptoms, and later the pathologic findings, of rabies. Dr. Edward Martin, Director of the Department of Public Health and Charities of the City of Philadelphia, through his chief medical inspector, Dr. A. A. Cairns, made arrangements with the Department of Health of New York City to have them mail the Pasteur treatment for both patients by special delivery. As assistant medical inspector, I was asked to take charge of the treatment. Each day's treatment was mailed to me by Dr. D. W. Poor, of the New York Health Department, and was received sometimes on the night of the day it was sent, but more often on the day following. When the virus arrived it was put on ice and administered as soon as practicable. I made the injections in the subcutaneous tissue of the abdomen at some distance from the point of the preceding inoculation. The skin was washed with soap and water and then with alcohol or with a 1-to-500 solution of formalin. This last washing was wrong, as no germicide should be used unless subsequently removed with sterile water. I disinfected my hands at first by scrubbing them with soap, water, and a brush, and then immersing them in a 1-to-500 formalin solution; but later I put on rubber gloves, which I soaked while on my hands in the formalin solution. I wore the gloves as a protection to myself, although Dr. Poor regards such precaution as unnecessary. I employed a 10 Cc. metal antitoxin syringe, which I took apart, boiled, and

¹Personal communications from Dr. D. W. Poor of the Department of Health of the City of New York.

cooled before using. The point of puncture was sealed with collodion or with compound tincture of benzoin.

The treatment caused neither constitutional disturbance nor local reaction, except on one or two occasions, which will be described later in detail. The patients were not confined to the house; the man, a night-watchman, attended to his duties throughout the whole course of treatment; the boy went out and could have attended school had his parents permitted. Inasmuch as the patients developed no symptom of rabies during the course of the treatment or in the two weeks following, they were regarded as free from the disease.

I now shall describe the cases in greater detail.

F. E. F., aged 61 years, married, a night-watchman, was bitten by a dog on November 19, 1904. He had used alcohol to excess; and at the time I examined him showed general arteriosclerosis, cardiac dilatation, and tuberculous consolidation in the right lung.

The man had been bitten slightly on both thumbs. Blood could be squeezed from the right thumb, which did not bleed much. The left thumb bled more freely. Two hours after the bite the wounds were cauterized with the silver nitrate stick. They received no other treatment. The dog was taken to the Veterinary Hospital of the University of Pennsylvania and allowed to die. The plexiform ganglia and the medulla were examined on November 26, in the Pepper Clinical Laboratory, by the pathologist of the State Live Stock Sanitary Board of Pennsylvania and were found to be the seat of the changes described as diagnostic of rabies.¹

I began treatment on November 23, without waiting for the report from the laboratory. The patient at that time complained of a numb, chilly feeling and of a cramp in his left hand and arm which had been present since the bite. He had felt worried, nervous, and depressed, and had not been sleeping well. There was a superficial cut three-eighths of an inch long on the inner aspect of the dorsum of the left thumb, over the second joint, and

there was a scratch on the last phalanx of the right thumb. The treatment was as follows:

First injection November 23, 2 doses of 3 Cc. each of 13 days' cord; second injection November 24, 2 doses of 3 Cc. each of 13 days' cord; third injection November 26, 2 doses of $2\frac{1}{2}$ Cc. each of 10 and 9 days' cord; fourth injection November 27, 2 doses of 3 Cc. each of 8 and 7 days' cord; fifth injection November 29, 1 dose of 3 Cc. of 5 days' cord; sixth injection November 30, 1 dose of $2\frac{1}{2}$ Cc. of 4 days' cord; seventh injection December 1, 1 dose of 2 Cc. of 3 days' cord; eighth injection December 2, 1 dose of 2 Cc. of 3 days' cord; ninth injection December 3, 1 dose of $2\frac{1}{2}$ Cc. of 4 days' cord; tenth injection December 4, 1 dose of $2\frac{1}{2}$ Cc. of 3 days' cord; eleventh injection December 6, 1 dose of $2\frac{1}{2}$ Cc. of 4 days' cord; twelfth injection December 7, 1 dose of $2\frac{1}{2}$ Cc. of 3 days' cord; thirteenth injection December 9, 1 dose of $2\frac{1}{2}$ Cc. of 3 days' cord; fourteenth injection December 10, 1 dose of $2\frac{1}{2}$ Cc. of 5 days' cord; fifteenth injection December 11, 1 dose of $2\frac{1}{2}$ Cc. of 4 days' cord; December 12, missed 1 dose of $2\frac{1}{2}$ Cc. of 4 days' cord; sixteenth injection December 13, 1 dose of 2 Cc. of 3 days' cord; seventeenth injection December 14, 1 dose of $2\frac{1}{2}$ Cc. of 5 days' cord.

The injections caused no pain at the time they were made. On several occasions, however, pain lasting several minutes developed at the seat of puncture shortly after the injection. On November 24, the second day of treatment, about $2\frac{1}{2}$ hours after the two injections of 3 Cc. each of 13 days' cord, severe pain developed at the sites of the injections, which were at distant points on the abdomen. The pain was burning in character and was extremely severe; in the words of the patient, "it knocked him out." The man was doubled up and could not straighten himself. The acute pain lasted three hours, but a less severe pain, associated with soreness and tenderness, persisted for some time after. There was little constitutional disturbance at this time. Seven hours after the injection the patient felt chilly for four hours, and about six hours later he again felt chilly for a short time. For a few days, beginning December 1, there was an intense itching at the site of the injections.

¹If the head of an animal suspected of rabies be sent to the State Live Stock Sanitary Board of Pennsylvania, Pepper Clinical Laboratory, Thirty-fifth and Spruce Streets, Philadelphia, this examination will be made free of charge.

A diffuse redness often appeared immediately or shortly after the injection at the point of inoculation, frequently extending downward and to each side for a distance of two inches. This persisted for varying periods of time, from a few hours to a day or two. After the first week of the treatment the patient felt bad and depressed and complained of a "dry, chilly feeling." His temperature was subnormal the greater part of the time.

He felt well for the two weeks following the treatment, and as late as February 21 had experienced no further inconvenience from the bite or the treatment.

B. R. F., the above patient's fifteen-year-old son, was bitten by the same dog on the same day as his father. He had had several attacks of inflammatory rheumatism, which had left him with an enormously hypertrophied heart, the seat both of obstruction and of insufficiency at both the mitral and the aortic orifices.

He was bitten in the right corner of his mouth on the margin, and just outside of the margin, of the upper lip. The lip swelled, but did not bleed. He was bitten also on the dorsum of the right wrist and of the first joint and second phalanx of the right thumb, and was scratched by the dog's teeth on the dorsum of the first joint and both phalanges of the left thumb. The wounds were cauterized with pure carbolic acid within one and a half hours, and an hour later were again cauterized with a silver nitrate stick.

Treatment was begun on November 23. At that time scratch marks were the only evidence of the bites. The boy had experienced no abnormal sensation since being bitten, and was feeling well. His course of treatment was as follows:

First injection November 23, 2 doses of 3 Cc. each of 13 days' cord; second injection November 24, 2 doses of 3 Cc. each of 13 days' cord; third injection November 26, 2 doses of 3 Cc. each of 10 and 9 days' cord; fourth injection November 27, 2 doses of 3 Cc. each of 8 and 7 days' cord; fifth injection November 29, 1 dose of 3 Cc. of 5 days' cord; sixth injection November 30, 1 dose of 2 Cc. of 4 days' cord; seventh injection December 1, 1 dose of 2 Cc. of 3 days' cord; eighth injection December 2, 1 dose of

2½ Cc. of 3 days' cord; ninth injection December 3, 1 dose of 2½ Cc. 4 days' cord; tenth injection December 4, 1 dose of 2½ Cc. of 3 days' cord; eleventh injection December 6, 1 dose of 2½ Cc. of 4 days' cord; twelfth injection December 7, 1 dose of 2½ Cc. of 3 days' cord; thirteenth injection December 9, 1 dose of 2½ Cc. of 3 days' cord; fourteenth injection December 10, 1 dose of 2 Cc. of 5 days' cord; fifteenth injection, December 11, 1 dose of 2½ Cc. of 4 days' cord; sixteenth injection December 12, 1 dose of 2½ Cc. of 4 days' cord; seventeenth injection December 13, 1 dose of 2 Cc. of 3 days' cord; eighteenth injection December 14, 1 dose of 2½ Cc. of 3 days' cord; nineteenth injection December 15, 1 dose of 2 Cc. of 3 days' cord; twentieth injection December 16, 1 dose of 2 Cc. of 5 days' cord; twenty-first injection December 17, 1 dose of 2 Cc. of 4 days' cord; twenty-second and last injection December 18, 1 dose of 2 Cc. of 4 days' cord.

The injection caused no pain, except on November 26 and 27, and on December 17 and 18, when it did produce some transient burning. Pain lasting several minutes occurred shortly after the injection on November 23 and 27. A little while after a diffuse redness would often appear at the site of and below the inoculation, lasting from two to twenty-four hours. The virus was absorbed quickly as a rule; on one or two occasions, however, it took several minutes to disappear. The patient stated that shortly after the third injection the tissue swelled to half the size of an orange and remained so for half an hour. After December 1 he complained of intense itching at the site of the injection.

The boy's general health continued good. There was no constitutional disturbance except on one occasion, which shall be referred to later. The temperature was elevated the first two weeks of treatment, registering 100.4° on November 25, and rising less each day till December 6, after which it remained normal.

On November 27 he said he had a feeling as if something were running down his leg. On December 9 there was a slight punctiform macular eruption over the abdomen and the back of the hands. The boy complained of an ache in his arm on December 16.

On the second day of treatment, November 24, at 5 P.M., I injected 3 Cc. of a 13 days' cord in each side of the abdomen below and to the outer side of the site of the previous inoculation. This caused no pain. There was no tenderness or pain at the spot where the previous puncture had been made. Three hours after the injection an intense burning pain, compared to that produced by a strong mustard plaster, was felt at the site of the injection, lasting seven hours and preventing sleep. The patient was doubled up and unable to straighten himself. The pain then became less acute, but persisted all day as a dull ache and a soreness, the affected spot being sore and tender. The lad became very pale during his acute suffering. In the afternoon the pulse was 104 and the temperature 100.4°. Except for the soreness the boy felt well. I applied an antiseptic ointment and gave a cathartic. By the next day the symptoms had practically disappeared, and the general condition was good. The temperature was 100.2°. There was no redness at the sites of the inoculations, but there was tenderness over an area roughly semicircular, extending two inches below and two inches to either side of the point of puncture. At 5 P.M. an injection of 2½ Cc. of 10 and 9 days' cords was given on each side of the abdomen, above and to the outer side of the site of the first inoculation. After about 1 Cc. had been injected some transient burning ensued. Very severe pain, almost as bad as before, began about 8 P.M. and persisted until the following afternoon, at which time there was deep tenderness and dull redness about the sites of puncture. These were the only instances of a severe reaction to the treatment.

At no time has the boy shown any symptoms of rabies. Two weeks after the cessation of all treatment he felt perfectly well, and he continued well up to my last visit on February 21.

In conclusion, I feel justified in saying that when a person has been bitten by a rabid dog he need not of necessity go to a Pasteur Institute for treatment. If he lives within a day's journey of a reliable institute the virus may be sent to him by mail and injected with success by the family physician.

ECHINACEA ANGUSTIFOLIA.

By FINLEY ELLINGWOOD, M.D.,
Chicago, Ill.

This remedial agent has come into use within the last ten years, because of its direct influence in correcting those deprivations of the body fluids which depend upon organic causes. To class this remedy as an alterative or an antiseptic would greatly narrow its field; in fact, it is impossible to apply such terms to the remedy in the breadth of its influence. They but inadequately convey to our mind the therapeutic possibilities of the drug.

Echinacea angustifolia is the narrow-leaved, purple cone flower commonly called Black Sampson. It is found only in prairie regions, and is indigenous to the United States, growing chiefly in the Western States. The variety growing east of the Mississippi does not possess the essential therapeutic properties. It blooms during the months of June, July, and August, and is known in Kansas as the niggerhead. This name is derived from the peculiar shape and dark color of the head forming the fruit.

In 1870 Dr. H. F. C. Meyer, of Pawnee City, Nebraska, made the astonishing declaration that in several instances he had allowed himself to be bitten by a rattlesnake, and had then bathed the bite in a strong tincture of echinacea. He also took the tincture in drachm doses internally, and felt but little effect from the bite. This statement had so much of quackery in its tone that little attention was paid to it. Subsequently this influence has been proven in hundreds of cases, as the remedy is now in almost general use in some localities for this purpose.

As stated above, its field covers the entire range of organic infection. Blood poisoning, in the common acceptation of this generic term, in all its forms is met more promptly with this remedy than with any single remedy or any combination of remedies. Its field covers acute or chronic autoinfection, acute direct septic infection, slow progressive blood taints, and all faults of the blood from imperfect elimination, and pyemia.

As a remedy for septicemia the promptness of its action has surprised every physician who has yet prescribed it. If it

had no other influence than that of antagonizing direct septic infection, this would be sufficient to class it as of first importance among specific remedies for this purpose.

In infection from the bites of venomous snakes, tarantulas, spiders, scorpions, and the stings of insects and wasps, its influence is immediate and in every way satisfactory. It should always be given internally, and applied also externally at the same time. Where there is recent infection it is advisable to inject the remedy into the surrounding parts with a hypodermic needle. It is a local anesthetic, and apart from the temporary pain caused by the injection of the tincture, its effect is immediate.

In the treatment of tetanus the wounds should be opened freely, and all extraneous matter thoroughly removed. This remedy should then be poured into the wound or introduced on antiseptic gauze, and injected into the surrounding tissues as well. The gauze should be kept saturated, and the remedy should be administered in drachm doses every two hours. Several cases of tetanus, in the incipient stage, have been cured, and always with no further development, after the first use of the remedy.

As a remedy for pyemia the results from the use of echinacea alone have been surprising. Several most extreme cases have been reported, where the infection was general and where there was great destruction of tissue. The influence of the remedy, when the pus has been removed and the cavities are cleansed antiseptically, is pronounced from the first. The patient has a rapidly developing vigor and improved vitality, the appetite returns, the nervous system is aroused and stimulated, the functions of all the organs of the body are in every way improved, and convalescence, although slow in extreme cases, is in every way satisfactory.

This agent improves the appetite and digestion and overcomes many forms of dyspepsia, especially those which depend upon fermentation. In ulcerative stomatitis, in stomatitis materna, and in ulcerations of the gastrointestinal tract from whatever cause, this remedy will be found efficient.

It has been found of much service in

typhoid fever. While it does not abort the fever, the entire course of the disease is mild, and it modifies uniformly all the pathological conditions. All observers are positive that it greatly modifies the temperature. A large number of experiments have been made to determine the difference in the range of temperature with and without the remedy, and the results have convinced the observers that a reduction of from one to three degrees is produced by this drug. The blood does not become impaired, assimilation and nutrition are sustained, fermentation is avoided, nerve force is retained, elimination of all excretions is improved, ulceration of Peyer's patches ceases, other enteric symptoms abate, there is little if any tympanites, and there has as yet been no case of hemorrhage or perforation reported as having occurred after this agent was begun.

In septic fevers the influence of echinacea is much the same as in typhoid. Through its stimulant influence upon the nerve centers the vital forces are not depressed by the poison. In one case, where there was extreme septic absorption after a badly conducted abortion, with nephritis and almost complete suppression of urine, where uremia had supervened and delirium and mild convulsions were present, twenty drops of the fluid extract of echinacea was given every two hours continuously. Persistent heat was applied over the kidneys, and after a single dose of an antispasmodic no other remedy was administered. All the conditions depending upon the septic absorption were promptly and satisfactorily relieved, the improvement being plainly apparent in forty-eight hours.

Its influence upon uremic poisoning is as satisfactory as in the cases above mentioned. While it does not as promptly restore the renal secretion as perhaps some other remedies or combinations would do, it very materially accelerates the influence of other remedies. The writer has used persistent heat alone with this remedy where the suppression was more or less complete.

In those cases in which are exhibited boils, acne, carbuncle, abscesses, and various forms of glandular inflammation, this agent is of direct value.

Because of its marked influence upon

the blood, and because of its profoundly stimulating and nutritional influence upon the central nervous system, it is said to be a remarkably beneficial agent in the treatment of cerebrospinal meningitis.

It is in common use in the treatment of diphtheria, and while a valuable agent it is not so pronounced in its effects as it is in other conditions. After the membrane has been thoroughly removed, the influence of echinacea upon those conditions of blood disorder which depend upon the absorption of the toxins is satisfactory.

Extravagant statements concerning the action of a remedy do not establish confidence in its influence. The prompt results of echinacea, when correctly applied, have caused all writers to express themselves so positively and with such apparent extravagance as to really retard the introduction of this agent to the profession at large. It, however, will yet establish for itself, by its inherent valuable therapeutic properties, with the entire profession, a fixed and permanent place. It will replace inorganic alteratives, as it has in reasonable doses no toxic or undesirable influences, and its elimination is perfect.

A FEW OBSERVATIONS UPON URINE AFTER ANESTHESIA.¹

BY CLINTON E. GOODWIN, A.B., M.D.,
Weedsport, N. Y.

During the past year the custom was inaugurated in this hospital of examining the urine of each patient on the first morning after anesthesia. Following this it was soon noted that many cases, most of which had previously shown no nephritic abnormality, developed albumin and casts, often in considerable abundance, so I have undertaken to show in this paper the frequency of these nephritic changes in our hospital, together with the findings of a few other observers.

Legrain examined the urine of 54 people after chloroform and 41 after ether anesthetization, finding 10 albumins and cylindruria after chloroform, and 15 after ether. Autopsies after ether showed

hemorrhagic nephritis affecting especially the glomeruli. Experimental investigation upon animals showed similar results. After chloroform the animals experimented upon did not show the glomerular nephritis with fatty degeneration or necrosis of the epithelium of the tubules, and extravasation of leucocytes about the glomeruli and into the parenchyma. He concludes that albumin is more frequently observed in urine after ether than after chloroform, but that the nephritis caused by ether is transitory while that due to chloroform is likely to become chronic.

H. C. Wood, after reporting cases of urinary suppression following the use of ether in chronic Bright's disease, says: "It is now certain that chloroform is capable of causing severe renal irritation, and it may well be that, though renal disease may be considered a contraindication to the use of an anesthetic, the choice of the surgeon may properly lean toward ether." He reviewed the summary of Eisendrath, who found that albuminuria was produced in 25 per cent of his cases anesthetized by ether and 32 per cent by chloroform, with casts 28.3 per cent after ether and 21.4 per cent after chloroform; and Wunderlich's summary, which shows 24.6 per cent cases with casts after ether and 34.8 per cent after chloroform. He also mentioned other investigators who show less frequency of postanesthetic albuminuria, in persons with previously sound kidneys, and concludes with the statement that "all statistics strongly point toward the opinion that ether, so far as the kidneys are concerned, is less dangerous than is chloroform."

Further, Butler in 500 cases of ether narcosis found one albuminuria where none had previously been seen. Korte in 600 cases found six instances of albumin present where before etherization it had not been found, and states decisively that in his opinion ether does not aggravate a damaged kidney, but that chloroform does. He also gave seven instances where preëxisting albumin was not increased by etherization. Garre believes that an attack of nephritis is not at all likely to occur from an etherization.

Wunderlich concludes that, in an already existing case, albuminuria is frequently augmented by ether narcosis, that

¹Read before the Graduate Internes' Association of the Hospital of the Good Shepherd, Syracuse, N. Y., Dec. 13, 1904.

this is twice as common in chloroform narcosis, or in proportion as $11\frac{1}{2}$ per cent is to $6\frac{3}{10}$ per cent. From chloroform, and more seldom from ether, are casts found in proportion as 34.8 per cent is to 24.6 per cent. If cylindruria exists in both ether and chloroform narcosis, there is an increase to be met with, in both cases, due, he believes, to an ischemia of the kidney or to lessened blood-pressure. He believes that casts are due to a direct irritation of the ether and chloroform upon the kidney epithelium. Wood in experiments upon animals carefully tested the ether for urine with negative results. However, he admits that etherization in dogs produced a cloudy swelling of the renal epithelium, which he attributed to irritation by some retrograde ether products. In this we must observe the criticism made by Fenter upon his own experiments upon animals—i.e., that animals are much more sensitive to the action of ether irritation upon the kidneys than is mankind.

Robert F. Weir in 1890 discussed as to whether etherization injuriously affected the kidneys, and presented a series of 40 cases, from which it appeared that, where the kidneys were previously healthy, no disturbance in the renal function was observed in 75 per cent of the cases, while in the remaining 25 per cent there occurred slight transitory traces of albumin.

In 1895 the same observer appeared before the American Surgical Association, showing the effects of ether upon the kidneys in several groups of cases which I shall summarize.

Three hundred and five cases were presented without their accompanying temperatures recorded. Of these, 264 (or 87 per cent) showed no injurious effects, while 39 cases (or 13 per cent) showed abnormalities produced or increased after the ether, though in most cases the abnormalities disappeared in a few days.

One hundred and ninety-two cases were reported, with accompanying temperatures recorded. Of 90 cases with normal temperatures $81\frac{1}{9}$ per cent showed no detrimental action of the ether, while $18\frac{8}{9}$ per cent showed injuries. The remaining 102 cases had temperatures ranging from 100° to 104° F. Of these $84\frac{1}{2}$ per cent showed no bad effects,

against $15\frac{1}{2}$ per cent in which abnormalities were reduced or increased after the use of ether.

Out of another series of 113 cases without a record of the temperatures, only 8 showed ill effects from the ether.

From these cases Weir concludes that etherization, in the majority of cases with normal kidneys, and even in cases with abnormal kidneys, brings no detrimental effects, and if present the abnormalities produced are transitory in character. Also that elevation of temperature in conjunction with ether narcosis does not appear to exercise any positive influence on the renal secretions.

John B. Deaver and Carl Freese, of Philadelphia, examined the urine in 63 cases of ether narcosis, finding 22 cases without deleterious effects, while 41 cases showed abnormalities induced or increased, as evidenced by the presence of albumin, casts, red blood cells, pus, and epithelium. And Israel reports 100 cases in which chloroform was used, with one-third of the cases showing damage.

In contradiction to the conclusions of most of the foregoing writers, we have an article by Kemp which appeared in the *New York Medical Journal* of 1899. In it he states that ether causes a rise of carotid blood-pressure, this rise being followed by a fall. The urinary secretion is scanty, and albumin appears soon after the commencement of inhalation. Chloroform causes a slight temporary rise of blood-pressure, followed by a marked and continuous fall. The secretion of urine by the kidneys is copious and uninterrupted, and is lessened only when the general circulation is strongly depressed. Albumin is occasionally found, but only at a late stage and in small amounts. His conclusions are that ether causes a contraction of the renal arterioles and injures the secretory cells of the kidney, and that kidney disease or edema of the lungs is a contraindication to the use of ether.

Dr. Lafont has called attention to the possible after-results of nitrous oxide anesthesia, and among them albuminuria. He also warns against the possible production of diabetes mellitus, and reports a case in which sugar appeared in the urine twice after the use of gas. He found sugar in large quantities in his own

urine after an inhalation, and was able to produce glycosuria in the dog.

Dr. G. S. Woodward and Alfred Hand failed in several experiments to produce albuminuria or glycosuria, but Dr. Kenderdine, a Philadelphia surgeon, died of diabetes which he persistently attributed to nitrous oxide.

In our hospital during the past six months the various anesthetics have been induced by ether, chloroform, nitrous oxide followed by ether, or chloroform followed by ether, and upon these I have based my observations.

Sixty-five cases were examined in connection with chloroform anesthesia. Fifty-six of these had normal temperatures, of which 33 cases, or 59 per cent, were normal both before and after the inhalation, while 23 cases, or 41 per cent, were normal before and abnormal after, 23 per cent showing albumin and 18 per cent showing casts. Of 9 cases with fever ranging from 100° to 103° F., 3 cases were normal before and after anesthesia, 3 were normal before and showed albumin and casts after, one had albumin and casts before anesthesia with no change after, and 2 cases which were abnormal before showed an improvement after the anesthetic had been given.

Sixty-one cases of persons anesthetized with nitrous oxide followed by ether were studied. Of 29 cases with normal temperatures, 78 1/3 per cent were normal before and after anesthesia; 21 2/3 per cent were normal before and abnormal afterward, 16 1/2 per cent showing casts and 13 1/2 per cent showing albumin.

Six cases with normal temperatures had abnormalities before anesthetization. Of these, 3 showed no changes, 2 showed increased abnormality, and one case was improved.

Eighteen cases had associated fevers of 100° to 103° F. Of these, 8 were normal before and after; 7 cases were normal before and abnormal after, one of these showing sugar as a new product; and 3 cases were abnormal before without any changes after anesthesia, two of these having sugar in the same amounts before and after the inhalation.

Forty-one cases were studied after chloroform followed by ether. Of 28 cases with normal temperatures, 61 per cent were normal before and after anesthesia, while 39 per cent showed albumin

or casts after operation, 32 per cent showing casts and 21 per cent showing albumin. Three cases with normal temperatures were abnormal before anesthesia, with abnormalities increased after. Of 10 cases with fevers of 100° to 103° F., 3 showed ill effects of anesthesia.

With ether anesthesia 28 cases were studied. Of 19 cases with normal temperatures, 58 per cent were normal before and after, while 42 per cent showed albumin or casts after anesthesia. Of 2 cases that showed albumin before anesthesia, one was improved and the other unchanged. One case showed 56 per cent sugar after ether. Of 7 cases with fever, 3 showed ill effects of the ether, one case showing .58 per cent sugar after anesthesia, whereas none had been present before.

To summarize: In none of the series did the temperature seem to have any influence upon the production of abnormalities. In 65 chloroform cases the urine showed albumin or casts (or both) induced or increased after inhalation in 40 per cent of the cases, sugar occurring in one instance. In 61 cases of anesthesia produced by nitrous oxide followed by ether, albumin and casts occurred or were increased in the urine in 12 per cent, one case showing sugar. In 41 cases of chloroform followed by ether, albumin and casts were induced or increased in 41 1/2 per cent of the cases. In 28 ether anesthetics 39 per cent of the cases showed albumin and casts increased or present afresh after the narcosis, two cases also showing fresh occurrence of sugar in small quantities. In these cases the albumin and casts usually disappeared in a few days, though rarely they persisted for ten days. The sugar disappeared in all cases after the first day.

Concerning the presence of sugar it might be well for me to state that the copper test was used in examination. Osler gives chloroform as one of the drugs which produce in urine a substance capable of reducing copper. The presence of sugar twice after ether alone excludes the right to lay the blame upon nitrous oxide for the presence of sugar after the anesthetization by gas and ether.

Having collected these facts, I will leave them with you, that you may draw your own conclusions as to the relative dangers to the kidneys by the various anesthetics.

DIAPHORESIS IN THE TREATMENT OF EYE DISEASES.¹

BY HOWARD F. HANSELL, M.D., PHILADELPHIA,
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College of Philadelphia.

Since the publication of my first paper some years ago on the value of active diaphoresis in the treatment of acute inflammatory affections of the eye, and particularly of the uveal tract, I have given the method repeated trials. My experience leads me to believe that we have a therapeutic measure of great efficacy, and when used with judgment and in combination with other general and with local remedies the results are not infrequently prompt and brilliant. I am led to refer again to the subject because of the marked success that has attended the treatment of three cases recently under my care. I have resorted to the method in many other cases, and with exceptionally good results. The exceptions were chronic disease of the uveal tract due to syphilis, traumatism, or an unknown cause.

The only modification of the method of carrying out the sweating process described in my previous paper is the omission of pilocarpine. In the majority of cases fully as active and profuse sweating can be induced by the hot-bath method without the administration of any drug as by the internal or hypodermic use of pilocarpine or any of the preparations of jaborandi. The patient remains in a tub of water, the temperature of which is maintained from 106° to 110° F., for ten to twelve minutes. Upon emerging from the bath he is wrapped in a flannel wrapper and is put to bed between heavy blankets, the bedding protected by rubber sheets. Bottles containing very hot water are placed along his sides and an ice-cap on his head. Should the sweating be delayed or interrupted, it may be hastened by drinking a cup of ice water. The sweat is continued from one to two hours, and repeated daily for two weeks or longer. Should the patient show any signs of weakness the bath should be preceded by a hypodermic of strychnine. It is only in cases of resistance to the stimulation to sweating, as might occur after the treatment has been

continued for some time, that pilocarpine may be added. One-half hour after the bath gr. $\frac{1}{8}$ pilocarpine nitrate is given hypodermically. It would seem that this simple treatment could be carried out in any dwelling-house provided with a bathroom by people of average intelligence, yet such is not the case. To secure the best results hospital accommodations and trained attendants are advisable.

CASE I.—Acute retinochoroiditis. Mr. B., a large man weighing 234 pounds, consulted me September 15, 1904, complaining of diminution of vision in left eye for some days—V=8/200. The vitreous was filled with small floating opacities, and just above the fovea was a dark swelling about the size of the disk. By night of the same day he reported that he had lost the perception of light. Right eye healthy. Twelve successive days of efficient sweating reduced his weight by 29 pounds; brought about almost complete absorption of the opacities and retinochoroidal exudate, and improved vision to 20/30.

CASE II.—J. W. Chronic uveitis of many months' duration. Severe pain, loss of vision, photophobia, and all the symptoms characteristic of inflammation extending from the iris to the posterior pole of the eye through the uveal coat. Adjacent structures had become necessarily involved.

The vision of the right eye had been destroyed by a foreign body two years before. The eye had been enucleated eighteen months after injury in the hope that thereby a source of irritation to the left eye or an obstacle to healing might be removed. The operation, however, had no appreciable effect, good or bad. Three weeks of daily sweating caused an entire subsidence of the inflammation, absorption of the vitreous opacities, and the recovery of nearly full acuity of vision.

CASE III.—Mr. M. Acute choroiditis of left eye similar to that of Mr. B. Sudden in onset; almost complete loss of vision in a few days. Eight successive sweats resulted in absorption of the exudate in the retina, choroid, and vitreous. After his discharge from the hospital the treatment consisted in the administration of potassium iodide, and in two weeks vision was restored to its former acuity.

My experience in these three marked cases and in others less conspicuous con-

¹Read before the Section on Ophthalmology, College of Physicians, Philadelphia, Feb. 21, 1905.

firmly my belief in the efficacy of sweats in the cure of non-syphilitic acute choroiditis. It would appear that it is immaterial to the success of the treatment whether or not pilocarpine is given to stimulate the excretory organs of the skin. The object desired is the production of copious sweats, and since this can be obtained, profusely and continuously, for one and a half to two hours without any drugs whatever, pilocarpine may be properly reserved for those occasional patients who do not respond readily to the other remedies.

In all cases I believe absorption of the inflammatory exudates is hastened by the action of mercury, whether or not the affection be syphilitic. One drachm of mercurial ointment is rubbed into the skin once daily. This may be continued for a long time without danger of mercurialization when the baths are given. The potassium iodide may be added to the treatment, or, as I prefer, it may be advantageously given after the baths are discontinued and the patient is allowed his liberty. In non-syphilitic patients the dose is limited to about 60 grains each day. In syphilitic patients this moderate amount is almost useless except as a beginning. The quantity should be rapidly increased until several hundred grains daily are administered.

TREATMENT OF SYMPATHETIC OPHTHALMIA.

VEASEY states in the *Journal of the American Medical Association* of January 28, 1905, that the value of the administration of large doses of salicylate of sodium demands especial mention, and corroborates the experience of Gifford and others, who have given the remedy a trial. In some cases mercurial inunctions, the iodides, subconjunctival injections, and pilocarpine sweats not only fail to ameliorate but even to check the progress of the affection. In the same cases the symptoms promptly abate after the administration of the remedy is commenced, and in other cases the symptoms not only abate, but rapidly return on each occasion that the use of the drug is discontinued during a period of several months. The author's experience fully agrees with that of Gifford, that the drug must be administered in large doses to be of value,

and he asserts that should he have under his care a patient whose stomach would not tolerate such doses, he would attempt, as he has suggested, its administration by rectum, or perhaps by inunction. Should there be any heart or nephritic disease, smaller doses must be given at first and the effect carefully noted, but it is his belief that these small doses will not be found sufficient to control the sympathetic affection. The addition of a teaspoonful of brandy, as suggested by Gifford, or of a few drops of the tincture of nuxvomica, or aromatic spirits of ammonia, to each dose has appeared of value, not only in increasing the tolerance of the stomach to the drug, but in relieving, to some extent, the more or less depressant effect on the heart.

INFANTILE HEMIPLEGIA—TREATMENT.

The physician is consulted only when the paralysis of childhood has been some time in existence, for which reason mechanical and pedagogic treatment, in the opinion of METTLER (*Clinical Review*, December, 1904), is about all that can be instituted. Tonics are all that can be thought of in the way of medicinal agents.

Daily massage, electricity, and passive movements may be employed for the paralysis. Epilepsy is to be treated as usual with the careful administration of the bromides. This symptom, like chorea and athetosis, is not very amenable to medicinal management. Contractures should be overcome by stretching, forcible replacement, splints, tenotomy, and other well known orthopedic and surgical procedures.

Education, discipline, gymnastics, and systematized exercises can sometimes accomplish very gratifying results in cases in which intelligence is preserved. Care should be taken, however, not to overdo exercise. Exhaustion must be guarded against. Outside of this precaution these patients cannot be encouraged too much to use systematically as well as they can their paralyzed limbs.

While trephining and craniectomy, as suggested by Lannelongue, have been tried—removing clots and evacuating cysts—further experimentation is needed before a definite decision can be arrived at as to the utility of these measures.

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Leading Articles.

SOME NEW FACTS IN REGARD TO HYPODERMIC MEDICATION.

There is probably no active practitioner of medicine to-day who, when called upon to give a hypodermic injection, does not remember that it is important for him to carefully avoid puncturing a vein, and thereby injecting the drug directly into the circulation. Many practitioners also bear in mind the fact that in the presence of a chill or other condition of impaired peripheral circulation, hypodermic injections cannot be expected to act with any degree of speed or certainty, and that in the presence of dropsy they are useless in that the drug lies in the fluid contained in the subcutaneous tissues until, as the result of purgation, increased circulation, or diuresis, absorption of the dropsical fluid occurs.

For some years it has been the custom of those who employ mercury hypodermically in the treatment of syphilis to inject calomel, not into the subcutaneous tissues, but into the belly of a large muscle, with

the idea that by so doing the danger of abscess is diminished.

A research which has recently been carried out by Meltzer and Auer, and published in the *Journal of Experimental Medicine* of February 25, 1905, shows pretty clearly that intramuscular injections are far more valuable to the clinician than we have appreciated. Indeed, they assert that a soluble drug thrown into the belly of a muscle stands in value very near that of a direct injection into the circulation without any of the dangers associated with intravenous injection, and they prove that the results which they have obtained in animals by these intramuscular injections did not depend upon accidental intravenous injections, but upon true muscular absorption. When we consider the very great vascularity of muscular tissue and the enormous capillary networks which are found in muscles, these results of Meltzer and Auer are certainly not surprising, and the only cause for surprise is that a knowledge of these physiological facts has not popularized this method of medication in the past. They do not believe, however, that after an intramuscular injection the fluid directly enters the blood, but think that it is first deposited amongst the muscle fibers, and is then carried into the blood by some process of rapid absorption. Again, it is their belief that the difference between the absorption from a muscle and the subcutaneous tissues is a matter of degree and not of kind. Not only is the drug absorbed more quickly from a muscle than from a subcutaneous tissue, but much larger quantities are absorbed with ease. It is true, as in the case of subcutaneous injections, that certain substances pass into the circulation more rapidly than others, and they suggest that a new series of experiments should be made upon the rapidity of absorption and the physiological action of poisons and drugs when administered intramuscularly.

In the case of drugs which are slowly absorbed, but which are vegetable or animal in nature, we are under the impression that research will prove that intramuscular injections may modify the action of the drug materially, since it is a well-known fact that large capillary networks apparently have the power of oxidizing and destroying these poisons m

rapidly than tissues not so well provided with fine vessels. Meltzer and Auer's researches provide us, therefore, not only with facts which are useful to the general practitioner, but with a field in which clinicians and laboratory students may make interesting investigations.

We welcome all studies of this character, which not only add to our knowledge and stimulate a desire for investigation, but also open up lines of work in which the practitioner can perform original research with even better facilities than the laboratory worker who devotes himself to pure scientific research.

*MODIFIED SALINE SOLUTIONS, AND
THEIR USE IN SURGICAL SHOCK
AND MEDICAL COLLAPSE.*

A short time ago we quoted in these columns an interesting research, published in the *Annals of Surgery*, in which it was shown that accuracy in the standardization of saline solutions was exceedingly important, since solutions which were weak and solutions which were too strong were both capable of doing the patient great damage. Furthermore, it was shown that so small a variation as 0.1 or 0.2 per cent was sufficient to materially modify the value of the saline used. We therefore think it important to call attention to a still more recent research by Dawson, which has just appeared in the *Journal of Experimental Medicine* of February 25, 1905. As a result of this study he proves, apparently beyond all doubt, that the addition of sodium bicarbonate and sodium carbonate still further modifies and influences the effects produced by ordinary saline injections, and that the addition of from one-half to one per cent of bicarbonate of sodium to 0.8 per cent solution of sodium chloride may be of very great advantage in extreme cases of shock accompanied by loss of blood, since under these circumstances it causes a marked rise in arterial pressure, and also greatly stimulates the heart. Indeed, the stimulant effect which it exercises upon this viscus is so extraordinary that Dawson believes the bicarbonate must be used with caution lest the heart be overworked. Dawson, therefore, recommends that in urgent cases intravenous infusion with a solution containing bicarbonate of sodium

shall be used at first with the object of speedily raising a dangerously low arterial pressure, and then when the pressure has been restored to approximately normal, ordinary normal salt solutions may be employed which contain no bicarbonate.

The exact method by which sodium carbonate and sodium bicarbonate act upon the cardiovascular mechanism is not clearly understood, but the results of Dawson's investigations indicate that he has found a powerful adjuvant to the use of strychnine, atropine, and adrenalin in combating conditions which cause the surgeon great anxiety, and which far too often bring to a fatal conclusion an otherwise successful operation, or bring to death a medical case which, barring a sudden collapse, might have passed to speedy and complete convalescence.

*THE TREATMENT OF CEREBROSPINAL
MENINGITIS BY DIPHTHERIA
ANTITOXIN.*

The readers of the THERAPEUTIC GAZETTE will probably remember that we have published in our Progress columns on several occasions during the past year abstracts of articles in which clinicians of experience reported the results which they had obtained in the treatment of true cerebrospinal meningitis by the intraspinal injection of weak solutions of lysol with or without previous abstraction of some cerebrospinal fluid. It will be remembered that the results obtained by this method differed materially as to the number of cures which followed, as indeed do the results of all plans of treatment, good or bad. In some instances the reports were manifestly so optimistic as to engender doubt as to their accuracy. In others, one could not help suspecting that an error in diagnosis had been made, or that the symptoms were due to certain organisms in one case, and to less virulent organisms in another. It seems to be pretty well proven that the attacks of cerebrospinal meningitis produced by the microorganism of Weichselbaum are not as fatal as those cases produced by the pneumococcus and other pathogenic germs. But be this as it may, there can be little doubt that lumbar puncture and lysol injections are, to some slight extent, curative.

A much more recent method of treating cerebrospinal meningitis, and one which so far gives greater promise of success, although as yet it has not been sufficiently tried to enable us to speak with positive assurance, is that which consists in the administration of very large quantities of diphtheria antitoxin during the early stages of the malady. In an epidemic of the disease which has recently been present in Connecticut and in New York, this method has been considerably employed, and the results obtained have, to some extent, been summarized by Waitzfelder in the *Medical Record* of March 11, 1905. Out of seventeen cases treated during a period of five weeks in this manner, five have recovered completely, three have died, and nine were still under treatment at the time of writing. Five of these showed such marked improvement as to indicate probable recovery before being convalescent, and the remaining four cases were in a serious condition, so that an accurate prognosis could not be made. This method, originally introduced by Dr. Wolff, the bacteriologist of the Board of Health of the City of Hartford, requires, as we have already pointed out, the administration of the drug in the earliest stages and in truly massive doses—the first dose often amounting to not less than 10,000 units. In a case which the writer of this editorial has recently seen in consultation with the late Dr. Craig, of Philadelphia, 12,000 units were given within the first twelve hours of the illness, and more than 20,000 units altogether. The case terminated fatally within forty-eight hours of the time of onset, but it is only fair to state that it was of the fulminating type from the very beginning, and that for several hours after the antitoxin was first used the patient improved so markedly that there seemed to be good reason for hoping that he might ultimately recover, the delirium, muscular rigidity, and restlessness undergoing marked improvement, although death ultimately resulted, as already stated, from cardiac failure.

INCONTINENCE OF URINE IN CHILDREN.

If one looks through the indices of most books which are devoted to therapeutics, he will find that the bromides, belladonna, and other nervous sedatives are usually

recommended as being of considerable value in the treatment of incontinence of urine in children. But when he attempts to carry out such a line of treatment he will find that in a certain proportion of cases the use of these drugs improves the condition temporarily, but soon after their administration is stopped the disorder returns as persistently as before. In most instances this is due to the fact that a careful study of the urine has not been made before the sedatives were used. In a large proportion of cases suffering from this condition it will be found that the urine is more acid than normal, and perhaps concentrated; or it will be found that it is excessively alkaline, and loaded with phosphates. In both instances the incontinence is the result of the irritation of the bladder produced by these abnormal conditions, and unless they are rectified before or at the same time that sedatives are used, the condition is not cured, since the cause persists and manifests its results when the reflexes which are connected with the function of the bladder are no longer quieted by the nervous sedatives which we have named.

In many instances, if the urinary condition is carefully attended to, the use of sedatives is entirely unnecessary, and in those cases which depend upon atony or feebleness of the vesical centers in the spinal cord the sedatives will do actual harm, so that benefit will accrue only when stimulants, such as nux vomica, arsenic, and phosphorus, are administered.

In those cases in which the urine is excessively acid, a prescription containing sweet spirit of nitre and citrate of potassium, or other vegetable salt of potash, will often produce excellent results, although for a time the increase in urinary flow which may take place under the influence of these drugs may seem to make the condition worse, since the irritable bladder is flooded with urine which it is unable to retain. In the course of two or three days this irritability diminishes, as the vesical walls are bathed in the mild alkaline flow, and thus the full benefit of the treatment is developed.

On the other hand, when the urine is excessively alkaline, the use of three to five grains of benzoate of ammonium twice, thrice, or four times a day will give excellent results; or if for any reason the benzoate is considered undesirable, uri-

tone in one or two-grain doses twice or thrice a day, well diluted with water, will act equally well.

In a brief article in the March issue of the *Archives of Pediatrics*, Dr. Clemens contributes an interesting note upon chronic interstitial nephritis and the alkalinity of urine as two common causes of incontinence in children. The paper is of value not only because of the observations which it contains, but because of the fact that it impresses us with the importance of careful urinary analysis in cases of this character.

INFLAMMATORY STRICTURES OF THE POSTERIOR URETHRA.

Inflammatory strictures of the posterior urethra are so rare that if those due to direct traumatism be excepted, their existence is denied by many experienced observers. Thus Albarran absolutely denies the existence of such a lesion in the prostatic portion of the canal. Lefür (*Annales des Maladies des Organes Génito-urinaires*, vol. i, No. 1, 1905) calls attention to Bazy's case demonstrated by autopsy, in which the narrowing involved the membranous urethra. Because of the pathological changes incident to this stricture Bazy has no hesitation in stating that both the membranous and the prostatic urethra are subject to stricture of gonorrheal origin.

Careful examination of a few cases has shown that the cicatricial tissue, if the result of abscess or of rough catheterization, lies upon the floor of the urethra. The canal may be partly occluded by a concentric narrowing which is usually due to glandular involvement, and is commonly associated with chronic obliterating prostatitis. This may be likened to a diffuse cylindrical narrowing of the anterior urethra, associated, as a rule, with chronic interstitial urethritis.

In making the diagnosis of a posterior stricture a bulbous bougie is used. This, after having passed the compressor urethræ muscle, is arrested at the seat of narrowing. Its point of arrest is detected by rectal palpation. It is common enough to find the prostate normal or even subnormal in size. The surgeon must carefully distinguish between stricture and spasm of the compressor urethræ muscle,

and must also avoid being deceived by a mucous fold in a wide prostatic urethra. The cystoscope may be of service. Occasionally the diagnosis can only be absolutely established by an external urethrotomy.

When the stricture is complicated by chronic prostatitis, which is the rule, there are recurring prostatic attacks with intervals of comparative comfort. The urine may be clear, micturition will be accomplished quite normally, when suddenly, as a sequel of sexual excitement or incident to constipation, there will be a sense of weight in the perineum accompanied by frequent and urgent micturition and pyuria. There may develop in a comparatively brief period chronic and complete retention, presenting the typical features of prostatism. The course of the affection is rapidly progressive and fatal, since vesical and renal infection develop. Death from uremia is the rule. Hence the prognosis is always grave.

Dilatation by means of prostatic dilators, massage, electricity, and copious irrigations with mild antiseptics, or the instillation of strong solutions of protargol, constitute the basis of treatment. In obstinate cases, especially when complicated by continued infection, a perineal incision, followed by section of the stricture under control of the finger, is indicated. Finally, if this measure fails because of a definite infiltration, total prostatectomy by the perineal route may be needful.

CLEANSING OF THE HANDS.

Although it has been abundantly proven by many admirable researches that by no practicable mechanical or chemical means can the hands of the surgeon be so thoroughly sterilized that during the course of a prolonged operation no living germs can reach the surface and enter the wound from the deeper layers of the skin of the operator, a communication on this subject by Reverdin and Massol (*Revue Médicale de la Suisse Romande*, Jan. 20, 1905) is interesting from the fact that they have apparently proven the use of antiseptics of any kind to be entirely illusory. They hold, and give good reasons for this belief, that the most important part of the cleansing process is mechanical scrubbing with a brush in

sterile water, and that if this be continued for a sufficient length of time the skin may be rendered very nearly sterile. Heat and soap are both regarded as mere adjuvants, while antiseptics, such as bichloride of mercury and carbolic acid in the strengths ordinarily employed, are entirely futile, unless their action is continued for such a length of time as to seriously injure the integrity of the skin. They mention only one antiseptic which is at all serviceable, namely, hemo-phenyl in five-per-cent solution. This they hold has shown distinct and penetrating antiseptic action, but only after its use for at least thirty minutes. Peroxide of hydrogen is, however, according to their researches, an antiseptic of extraordinary power, since even surgically filthy hands after an exposure of half an hour in a solution of 12 volumes to 100 of water were rendered almost aseptic. They deny completely what has been termed "sweat infection," namely, the presence of germs upon the surface of the skin carried there after surface disinfection from the ducts or secreting elements of the sweat glands. Although bacterial researches sometimes show after sweating of the hand in a hot-air chamber a number of bacteria considerably greater than were there before, this was never the case when the hands had previously been thoroughly cleansed mechanically. On the contrary, they note that the hands of persons suffering from hyperidrosis can be cleansed more promptly and thoroughly by brushing than those whose secreting glands act normally. This leads them to suggest that surgeons who are about to perform operations in which infection is likely to be peculiarly disastrous should, after washing their hands and applying soap to the nails, put on rubber gloves the night before, and wear them during the sleeping hours, thus producing a copious sweating and softening of the skin, which best favors its thorough cleansing immediately before operation.

The use of rubber gloves is accepted as a possible rather than indubitable improvement in surgical technique, the authors holding that tactile sensibility is seriously impaired, and that as a result of the sweating of unclean hands there is produced a virulently infective exudate which may cause the most unfortunate results in case the glove is punctured or

torn. This danger is generally well recognized, and it is practically the universal custom of the American surgeon to cleanse his hands as carefully and completely on donning his gloves as though the latter were not worn.

Reports on Therapeutic Progress

THE TREATMENT OF STREPTOCOCCIC PUERPERAL FEVER BY ANTITOXIC SERUM.

In the *Lancet* of December 31, 1904, FOULERTON reports the use of this agent. He says that apart from the failure of serum treatment in puerperal fever arising from uncertainty as to the particular strain of streptococcus which is present, the question of the dosage of the serum which is employed appears to be of considerable importance. In the absence of any approximately accurate method of standardizing the potency of different antistreptococcic serums it is obvious that any system of dosage must be entirely empirical; but a review of the cases of streptococcic puerperal fever in which a serum has been used with apparent success brings out very strongly the fact that when recovery occurs in severe cases it is after large doses of serum, frequently repeated.

In clinical practice the action of anti-streptococcic serum contrasts strongly with that of antidiphtheritic serum in this respect. In diphtheria the administration of a sufficient dose of antitoxic units is usually followed by immediate improvement; the improvement is sustained, and generally there is no need to repeat the dose. In cases of streptococcic puerperal fever, on the other hand, the rule has been that when improvement has followed on the first injection it has been necessary to repeat the dose of serum time after time. Thus, whilst in some cases the improvement following the first injection has been as marked as anything that is seen in the antitoxic treatment of diphtheria—sometimes, perhaps, the effect has been even more striking in the case of a patient apparently moribund with a severe streptococcic infection—it has been found again and again that within twenty-four hours serious symptoms have recurred, again to disappear on the repetition of the dose of serum. Regarding the matter en-

tirely from the clinical point of view, it would seem that the action of an antistreptococcic serum is purely antitoxic, and that, at any rate under the conditions commonly prevailing in a severe puerperal infection, the streptococci themselves are not affected by its use. In such a case there will frequently be a condition of streptococcic pelvic cellulitis, and the infecting bacteria, unaffected by the serum given, will continue to elaborate their specific toxins. And in order to neutralize the toxins, which are thus being continuously thrown into the patient's circulation, repeated doses of the serum must be given until the infection comes to a natural termination.

With any of the antistreptococcic serums at present in use it is advisable to commence treatment with an injection of at least 20 cubic centimeters, and one must be prepared to repeat this dose, if necessary, at least every twenty-four hours. Another point which appears clearly when one considers the general results of serum treatment in these cases is that if the serum is going to do any good at all the effects will be at once apparent. And consequently it is useless to persist in the use of a particular antistreptococcic serum unless its beneficial action is almost immediately apparent. If in a case of streptococcic puerperal infection no improvement follows two doses of 20 cubic centimeters administered within twelve hours it is useless to persist in administering it; another brand of serum should at once be tried.

In conclusion the author refers to the prejudice against the use of large injections of antistreptococcic serum which has arisen in the minds of some practitioners from the idea that the use of this class of serum is especially liable to be followed by certain toxic symptoms, the appearance of cutaneous eruptions with slight rise of temperature, and transient arthropathies. Such unfavorable symptoms are common to the use of any kind of horse serum, and, other things being equal, are not more likely to follow on the injection of an antistreptococcic serum than on the injection of antidiphtheritic serum or on the injection of a normal horse serum; in fact, the most severe constitutional disturbance which the author has even seen following the use of a serum was in a patient who

had received an injection of what was for practical purposes a normal horse serum. The reasons why these symptoms have been more especially noticed in the serum treatment of streptococcic infections is doubtless because in such cases it is frequently necessary to give large and repeated doses; and possibly also the patients who require treatment with antistreptococcic serum are in such a condition that they are specially liable to react to horse serum. In any case it is probable that these toxic symptoms following on the use of a serum are not of any particular consequence, and the author is not aware of a single case in which any definite harm to the patient has resulted. But whatever the dangers are they must be risked when dealing with a severe streptococcic infection, and it cannot be too strongly insisted on that with the serums which are at present available a large dose is necessary for any success; the dose of five cubic centimeters of antistreptococcic serum which is sometimes advised is probably quite useless, and failure which is the consequence of inadequate dosage is one of the reasons why the use of antistreptococcic serum in puerperal cases has fallen into partial disrepute.

ON THE ADMINISTRATION OF ANTISTREPTOCOCCIC SERUM.

WALKER reaches the following conclusions in the *Lancet* of December 31, 1904:

1. That injection of antistreptococcic serum in cases of pure streptococcic infection has been followed by strikingly beneficial results.

2. That variability in the results of the serum in proved streptococcal infection has been due to the selective activity displayed by the antitoxin of each variety of streptococcus or to the serum being used too late in the case or having lost its activity from staleness.

3. That more uniform results are likely to be obtained from the present "compound" antistreptococcic serum than from the earlier forms, from the prompt injection of serum at the commencement instead of near the close of a severe infection, and from the use only of serum which has been recently prepared.

4. That the initial dose may with bene-

fit be increased and that a large quantity spread over several days causes no ill effect.

5. That the administration of the serum should be continued for some days after the general symptoms have disappeared and a recrudescence thus avoided.

RHEUMATOID ARTHRITIS: SOME OBSERVATIONS ON ITS TREATMENT.

The *London Practitioner* for February, 1905, contains an article by ORR on this subject:

It would appear that three ways of combating the disease must be used in combination, as the omission of any one of them results in the patient failing to make headway against the malady. On the other hand, if all three are steadily employed together, the effect is usually highly gratifying.

1. *Dietetic.*—The object aimed at is, in brief, to give a diet which is easily digested and assimilated, and not likely to cause any gastric or intestinal fermentation; and in addition, all red meats, including mutton and beef, are abolished from the diet list, as they undoubtedly do harm in rheumatoid arthritis. White meats and white fish only are allowed. These are cooked by boiling, roasting, grilling or, in the case of fish, by brandering. No foods stewed in fat are permitted, because of the difficulty offered by the fatty envelope to the gastric juice reaching the tissue to be digested. Further, as sugar, and in particular beet-sugar, very readily undergoes fermentation (and nowadays beet-sugar is pretty generally used by the public), this substance must be forbidden, and its place taken by saxin. For a similar reason, potatoes, turnips, cauliflower, peas, and beans should not be allowed in most cases. With regard to tea, a beverage which most patients do not care to dispense with, the ordinary method of infusion in boiling water is prejudicial, on account of the presence of free tannin, which is extracted in greater or less degree by the process of infusion. There is no objection, however, to tea if it be infused in boiling milk, because the tannin then enters into an association with the albumen of the milk and forms a bland, non-astringent, and innocuous combination. The tea is infused in boil-

ing milk for 15 minutes; half a cupful of this infusion is poured out into the cup, which is then filled up with boiling water. Saxin is added, if it is desired to sweeten the tea. Coffee and cocoa similarly prepared may be used. Well boiled porridge is good, and with it can be taken milk, or milk and cream. Eggs lightly boiled, scrambled, or poached can be taken by some patients without injurious effect; while others find them unsuitable. Milk puddings prepared without sugar, clear soups, macaroni, and milk soup are permissible.

Patients on such a diet do not necessarily become ill-nourished and thin; indeed they may even fatten. In fact some who after using this diet for a time have discontinued it get worse when they resort to eating any kind and all kinds of red meats.

With regard to stimulants, alcohol in moderate amount is neither beneficial nor the reverse in its influence on the course of the disease; but should it for any reason appear to be essential to the patient's well-being, whiskey may be ordered in properly regulated quantity.

2. *Internal Medication.*—This consists in the exhibition of arsenic and iron in small doses for the period of three weeks out of every month. The action of arsenic is, in the first instance, stimulant to gastric and intestinal digestion, whereby it increases the appetite; secondly, it increases the activity of the tissues, and as a consequence favors a better assimilation of foodstuffs; and thirdly, it causes an increase in the amount of red marrow in the bones, and so improves the condition of the blood. The addition of a little iron is found to be beneficial. The following combination has been found useful:

R. *Liquor arseni hydrochlorici*, fʒj-ʒij;
Vini ferri citratis, q. s. ad fʒiij.

M. Sig.: One teaspoonful in water thrice daily after meals.

Naturally, the patient must be under careful observation while arsenic is being given, and if any untoward symptoms appear indicative of excessive administration of the drug, it must be at once discontinued. Cod-liver oil is decidedly advantageous in cases in which it is well borne.

3. *Counter-irritation.*—This is most usefully carried out by the employment

of blisters. Each large joint has applied to it a blister once in every 7 or 10 days, and the author finds the emplastrum cantharidis the most certain and constant in its action. The size of the blister employed for these large joints is one inch square. Small blisters may be applied to the smaller joints, or iodine may be painted on the skin in place of a blister, though the latter is certainly the more efficacious. The counter-irritant is applied at different areas all round the affected joint. The physician begins where the greatest pain and swelling exist, and selects on each occasion a fresh area of skin as yet unblistered. Here again careful observation of the urine is necessary, and the occurrence of albuminuria will constitute a contraindication.

This treatment should be conscientiously pursued for two, three, or more years, according to the extent and severity of the disease; and one can say that by its means the disease can be arrested, and in many cases actually cured.

After a successful result is attained, as evinced by disappearance of swelling, freedom from pain, regaining of power of locomotion, and movement of the joints, the diet should still be unaltered, and arsenic and iron ought occasionally to be taken. It is perhaps not necessary to state that one cannot hope to cause diminution in size, or removal of the osseous outgrowths, which occur in the bones entering into the formation of the joints involved. Only the synovial increase and fluid effusions can be removed. But at the same time it is clear that no further osseous increase takes place, so long as the patient follows out the details of the plan laid down for his relief.

These then are the essentials of treatment by which we can greatly benefit sufferers from this serious disease.

NASAL DISEASE AS A CAUSE OF HEAD-ACHE.

WHITEHEAD after discussing this subject in the *British Medical Journal* of January 28, 1905, reaches the following conclusions:

1. Nasal disease is undoubtedly the cause of headaches in a certain percentage of cases, although it is doubtful whether it is possible for headache to be produced by any nasal condition which

does not give rise to discharge, or to obstruction to normal nasal respiration.

2. In all cases of persistent headache, a careful examination of the nose should be as much a routine practice as the examination of the urine, the teeth, and the eyes, since in some instances the nasal symptoms may be ignored by the patient, and a careful examination of the nose will be necessary to establish the diagnosis.

3. Suppuration in the accessory sinuses and marked nasal obstruction, constant or intermittent, should be thoroughly treated.

4. Small spurs, deviations, and hypertrophies not causing obstruction should be left alone, as no relief will be given from the headaches by treatment of these.

5. If the middle turbinate bones are enlarged and pressing upon the septum, especially upon the tubercle, and if all other possible causes of headache have been eliminated, partial removal of the hypertrophied bone should be advised, since in many such cases complete relief is given.

CHRONIC SUPPURATIVE OTITIS MEDIA: THE NECESSITY OF EARLY, SYSTEMATIC, AND ENERGETIC TREATMENT.

In the *British Medical Journal* of January 28, 1905, SMURTHWAITE states that a plan of treatment which the author has used in the clinic of Politzer in certain cases, and which he has since adopted with very good results, is to irrigate the ear with a normal saline solution once a week, while a solution of hydrogen peroxide, spiritus vini rectificatus, and boric acid is instilled every third day. The patient can carry out this treatment himself.

To deal successfully with cases of purulent discharge from the ear time and trouble are necessary, and as the patients, as a rule, have to carry out the greater part of the treatment themselves, it is most important to instruct them how to do it thoroughly. If we are to look for success time and trouble must be given; a half-hearted treatment is worse than useless, and it is just because the parents in many cases do not carry out our instructions that we are doomed to disappointment.

If such a discharge is allowed to per-

sist, complications may possibly arise, for, as Wilde has said, we can never say when, where, or how a discharge from the ear will end.

The struggle for existence in the race for life is sufficiently difficult for the majority of the physically fit without having an additional handicap imposed in the form of a deprivation more or less of the faculty of hearing; we should, therefore, do all in our power to instil into the poor the possible danger and consequences of a discharge from the ear, and the necessity of early treatment on its first appearance.

Case after case comes to the writer with the same old history—that during childhood they had a discharge from one or other ear, getting better or worse alternately, and that nothing much was thought about it, as it was supposed that the child would grow out of it. If such cases do eventually heal up, cicatricial adhesions about the ossicles and fenestræ are left, the hearing power being materially affected, in many cases beyond repair.

Prophylaxis is always better than cure, and if we take the mischief in time—that is, in early childhood or youth—we shall have done much for the hearing power of those who are to take their share, however small that share may be, in the future building of the country.

GASTROPTOSIS.

DAWSON advocates the following plan of treatment in the *Clinical Journal* of January 4, 1905: The indications are to strengthen the supports of the stomach, and chiefly therefore the anterior abdominal wall; to avoid the downward drag of the organ; to promote general nutrition and avoid fatigue.

The food selected should be nutritious and readily digestible. It is important to avoid foods which are difficult of digestion, or which easily give rise to putrefaction. Fat foods like butter and cream are good, though they have to be given with caution to prevent digestive disturbance. Food should be taken more frequently than in health, for these cases stand long intervals badly, and it will often be found that symptoms have occurred, or returned, largely because the patient has been compelled by the exigen-

cies of his life to go four, five, or more hours between meals. It should thus be arranged that half-meals are taken between the ordinary full ones. Rest in the recumbent posture for one, or better two, hours in the middle of the day is important. This takes the strain off the weak abdominal wall, relieves the traction of the displaced stomach, and prevents the supervention of dilatation. The benefit of this rest may be increased by raising the foot of the couch 9 to 12 inches. In bad cases lying down after each meal may be necessary. Sometimes a prolonged term of rest in bed is required, especially when symptoms of gastric neurasthenia are prominent.

Daily massage is valuable to strengthen the anterior abdominal wall and also to maintain the motor power of the stomach wall. Electricity is of some (though less) use to obtain the same ends.

The anterior abdominal wall is also strengthened by exercises. One of the best is as follows: The patient lies flat on his back on the floor and slowly raises himself into a sitting posture without raising his heels from the ground, and without assistance from his hands. This procedure is repeated several times in succession.

The stomach may be supported by an abdominal belt which applies pressure to the lower abdomen. The author has employed a specially constructed truss, the supporting pad of which is applied to the lower abdomen and exerts pressure upward, backward, and to the left.

Lavage should never be employed for simple prolapse, but if there is added dilatation it is a valuable treatment to avoid retention of stomach contents.

It is most important to maintain the motor power of the organ, in spite of the mechanical disadvantages produced by displacement.

As regards drugs: if gastric secretion is very feeble, alkalies and bitters before meals or pepsin with the meals should be prescribed. With dilatation, bismuth, or the double salicylate of bismuth, and cerium with strychnine, are useful. If the symptoms are neurasthenic, glycerophosphates of calcium and iron with strychnine or arsenic are of value.

Concerning surgical treatment, gastro-enterostomy is useless for gastroptosis.

though if there is much dilatation and this does not yield to medical treatment, short circuiting between stomach and bowel may become desirable. An operation for refixing the displaced stomach has been suggested and tried.

THE PAINS OF TABES.

GOWERS gives directions in the *British Medical Journal* of January 7, 1905, for the treatment of these cases. The treatment of the pains is partially separate from that of the disease, and so the author briefly speaks of it; but prognosis and treatment are intertwined, and there is one fact which it is well to make clear to the patient: Although the pains can often be lessened, they can seldom be altogether arrested. The tendency to them continues, as a rule, in some degree. They come and go, but an increase in the pain does not necessarily indicate any increase in the underlying morbid process. It is important that this should be made clear, for the patient is prone to think that he is essentially worse whenever an attack of pain occurs more severe than usual; but the pain has no necessary proportion to the disease. The altered structures seem to be brought into a state of instability so great that they are susceptible to other morbid influences—gouty, "rheumatic" (as we say) and those due to digestive derangements and constipation, which often have a conspicuous relation to the attacks of pain.

Only the superficial pains can be relieved by local measures. Chloroform sprinkled on lint, with oiled silk over it, generally gives some temporary relief. More lasting is the effect of a hypodermic injection of cocaine at the upper part of the area in which the pains are felt. A quarter or third of a grain usually stills the pain for one or two hours, and often the attack ceases. It is probable that some effect would be produced by the electrical administration of cocaine. If rubbed into the skin, in whatever combination, it has hardly any influence on sensibility. Voltaic electricity has no influence on the pains, whichever pole is applied. But if the positive electrode of a voltaic battery is saturated with a solution of cocaine, 6 to 10 per cent, the sensibility of the skin is abolished to both

touch and pain in ten minutes, and after a longer application the effect continues for about twice the time the current has been allowed to pass. This was ascertained some years ago, and the author has lately verified it, although independently. With the negative electrode no such effect is obtained. This deserves a careful trial in cases of tabes with superficial pains and tenderness, as it gives speedy relief.

Applications to the surface have not much effect on the deeper pains. A deep injection of cocaine has little influence on severe pains which are in the softer substance of a limb, perhaps because it cannot be directed accurately to the nerves involved. But where the tissues are less in amount, as in the foot pains that seem deep and do not cause tenderness of the skin, they may be stilled in a few minutes by an injection at the upper part of the region to which they are referred. As a rule, these deep pains are amenable to internal remedies, which are useful for those which are referred to the skin. Of the various pain-stilling agents, the well-known coal-tar derivatives stand above all others, at least for pains of moderate degree. It is indeed strange how high a position these agents have attained in general estimation. Unknown twenty-five years ago, they are now among the agents most frequently used. They were inventions rather than discoveries; they were new combinations, artificial products, which, as far as we know, had never existed before. The first purpose for which they were used was to reduce the temperature in pyrexia, as the names of two of them still imply. But their power to relieve pain was soon discerned, and quickly superseded their antipyretic influence. It is almost wholly as pain-stillers that they are now used. They lessen many kinds of pain without causing sleep.

Moreover they maintain their place. Many things come into fashion, obtain for a time, and pass away, forgotten. Survival is a sure indication of value. That which is really useful stays.

Phenacetin, antipyrin (or phenazone) and antifebrin (or acetanilid) are those which are most used and merit most confidence. They are of great service in most tabetic pains, unless they are of great intensity. One may succeed when

another fails. The order in which the author has mentioned these is the order in which they are used, but he believes the order of their efficiency is the reverse. Acetanilid is certainly the most effective and the least prescribed. This is possibly because it is more potent and has obtained the reputation of being less safe. The author himself has not observed any evidence to support this opinion. Certainly, however, 10 grains of acetanilid may be regarded as equivalent to 15 grains of antipyrin. It is an element of more than one patent medicine for the relief of pain. Of each of these agents it may be said that the effect of a given quantity is greatest if it is given in a single dose. Its influence is also greater if given at the beginning of an attack than when the pains have become well developed. Thus employed it is most useful. Sometimes, however, the suffering is so intense as to resist every agent except morphine, and the patient's suffering may be so severe as to necessitate this agent, and to render even large doses necessary to quell the pain. It is strange that the influence of morphine seems to be "used up" in stilling pain. A dose, say, $\frac{1}{2}$ grain, which would be hardly safe in health, so deep a sleep does it induce, may cause no sleep whatever if its sedative influence has been expended on severe pain. But such intensity as to compel morphine is rare, and neither morphine nor opium should be allowed to be taken at the patient's discretion.

Besides the relief of the tabetic pain when it occurs, something may often be done to lessen the tendency to its occurrence, to make it less frequent and less severe. The agent which the author has found most effective for this purpose is the chloride of aluminum, given in a dose of 5, 8 or 10 grains three times a day. It is readily soluble in water, and may be combined with most other drugs. The author can give no explanation of its action. He tried it simply because chloride of ammonium also sometimes has a similar, although feebler, effect—a reason which the author admits is not rational therapeutics. Yet that which is purely empirical sometimes deserves esteem. A similar influence may be obtained, in some cases, by the salicylate series of drugs, the alkaline salicylates, and also

the salicyl-acetic acid called aspirin. The latter has the disadvantage of insolubility, but may be given suspended with mucilage. The influence of these agents is curious in connection with the relation of the pains to changes in the weather.

The use of iodide of potassium or mercury belongs to the treatment of the disease rather than to that of the pains, but the author has never seen any clear evidence of good from either. At present, moreover, he cannot say more than that we have still to gain experience regarding modern therapeutic appliances which have been thought, or may be thought, to have some capacity of relief. He refers to high-frequency electric currents, the so-called light baths, and radium. The last requires care. One patient fancied he derived more benefit than the physicians could discern, and when he left their hospital he purchased some. In spite of warning he put the tube containing it against his skin at night, and had some troublesome ulcers in consequence. It is to be remembered that local sores and inflammations may develop in these patients without the warning which pain supplies in health. It is indeed strange that this danger signal should be absent in a disease that is one of the most pain-giving.

MOCCASIN BITE TREATED WITH ADRENALIN CHLORIDE.

A case of this character is reported by Menger in the *Texas Medical Journal* for January, 1905. Menger lately had occasion to try the new remedy on a young Mexican man seriously bitten by a water moccasin. He was bitten in dorsum of right foot, which was very much swollen—due in part also to a tight ligature—and two fang wounds could be seen clearly in the lower third of the dorsal part of the foot. The man was brought to the office with his foot tightly ligated around the foot joint, and he was bitten two hours before arriving. When the writer treated him, in the presence of Dr. R. L. Dinwiddie, he seemed to be suffering considerably from the fang wounds, especially on pressure along the wounded surface; he was very pale and pulse hardly perceptible on the other hand, and of slow rate. Menger at once injected about twenty-five drops of permanganate of potassium solution (2

grains to 3i, 4 grains to 3i) inside the fang wounds, and after waiting a while injected about twenty drops of adrenalin solution (1:1000 solution) near the fang wounds. This was done, of course, whilst the foot was still ligated—after incising the fang wounds to relieve some of the serum and blood. The adrenalin injections were made quite deeply into the subcellular tissues, and, after waiting a while, a piece of absorbent cotton saturated with solution of permanganate of potassium was applied freely over the entire dorsum of the foot, and the ligature now removed. The pulse rate at once improved and the man was sent home by his father on a cart. About two hours later the writer visited him at his home and he found his condition favorable, with pulse greatly improved, full and beating, and complaining but little of his foot, and there was much less swelling of the foot. After another application of adrenalin (ten drops) subcutaneously, and later one-half grain morphia to secure a restful night, he visited him next morning, and found him still more improved, with a little less swelling, full and bounding pulse, but not abnormally so, and no anesthesia of the foot or toes. In the afternoon the writer saw him again in company with Dr. Dinwiddie, who also was surprised to find him in such improved condition—without any swelling extending upward, as is usually the case in similar cases treated without adrenalin.

THERAPEUTIC DATA ON CHOREA MINOR.

BERG states in the *Archives of Pediatrics* for January, 1905, that the principles of therapy here, as in other diseases, require that when an etiological factor which is amenable to treatment exists that factor should be recognized and remedied. As is well known we now class rheumatism among the infectious diseases, and the source of infection seems to be in the tonsils and nasopharynx. In cases of chorea that have a rheumatic history the throat and nasopharynx should be carefully explored; if adenoids are found they should be removed, and chronically enlarged tonsils should be ablated and treated. The bowels and stomach should

be put in the best possible condition, and if worms are found in the stools anthelmintics should be given. The anemia present in almost all of these cases should be treated with appropriate iron preparations. The diet should be readily digestible, should contain very little meat, but should be rich in fats and carbohydrates, the latter to be excluded, however, in those severe and rare cases in which sugar appears in the urine. The child should be put to bed in a quiet and darkened room for several hours in the afternoon and encouraged to sleep. It is absolutely necessary to keep such children at home from school, for even in the milder cases the surroundings and duties of the school-room are not conducive to the recovery of the patients. Most of these children sleep fairly well at night. The severe cases, however, do not, and hypnotics will sometimes be necessary. Such drugs as do not affect the heart are to be preferred for this purpose. The author has recently used, in children from two to five years old, single, or more, grain doses of veronal with fairly uniform results. As far as the special drugs for the chorea are concerned, in those cases in which there is a rheumatic and cardiac element, Berg places first the administration of the salicylate of soda. He uses this drug in these cases as he would use it in subacute and chronic rheumatism, in moderate doses given every five hours, and sufficient to produce a slight ringing in the ears. A subsequent dose is not to be given as long as the tinnitus lasts. In one of his cases in which marked attacks of chorea minor alternated with attacks of rheumatic arthritis, the salicylates were equally efficacious in cutting short the attacks of chorea as well as the attacks of the rheumatism. He recommends that in all cases in addition to the other remedies used the salicylates be given, and he is sure that he has given them in many cases with marked benefit, in some with wonderful curative effect.

The arsenic treatment of chorea is classical. It has been the author's experience that cases treated with this remedy up to physiological tolerance have recovered in from two to three months and have remained well until they have had a relapse. He generally gives Fowler's solution, beginning with one or more drops,

according to age, and increasing the dose every third day until slight swelling of the eyelids is present in the morning. The arsenic should be given in water or vichy after meals. The gastric effect should be carefully watched, and other signs of the physiological effects looked for, such as nausea, pain in the throat, skin eruptions, etc. The appearance of such symptoms means a diminution or suspension of the drug. Especially careful should the physician be to examine the urine daily at least for albumin, and if this appears as a result of the arsenic administration the arsenic must be suspended immediately.

The author has never used strychnine either by injections or by the mouth in the treatment of chorea. He has never given chloroform to diminish the violence of the spasms. He does not think that the anesthetics are indicated, and yet they have been advised by eminent authorities.

In every case tonic treatment should be used. This means principally iron and stomachic tonics. In conclusion, the author reminds us that in cases of endocarditis with chronic heart changes the treatment of these with the usual cardiac stimulants, such as digitalis, strophanthus, nitroglycerin, and other well-known remedies, forms a necessary part of the therapy.

THE TREATMENT OF AORTIC REGURGITATION.

The treatment of aortic regurgitation, as in most cardiac affections, can be considered under two heads, those with compensation and those without it. The first requires only care, the last both care and interference on the part of the physician. "Perhaps more can be done to prolong life and postpone suffering in aortic regurgitation than in any other form of valvular disease; at any rate, it is in this disease that the greatest difference can be made by care on the one hand and imprudence on the other" (Broadbent). Reference should here be made to the very excellent chapters on the treatment of this condition by Babcock, of Chicago, in his recent work on "Diseases of the Heart and Arterial System," compared to which anything here suggested is simply an outline. In the estimation of the author no case of aortic regurgitation

should be allowed to take care of itself. It is the duty of the physician to manage the patient's life and actions. Most careful and painstaking examinations should be made from time to time, and notes on the existing condition should be constantly made. So long as this is done the cases with compensation are likely to remain in fair health. Such examinations, with guarded advice, are the only checks to hold the patient in. Here might be considered occupation, clothing, bathing, diet, exercise, and dangerous dissipation, whether from alcohol, venery, or excessive work; influences of climate and traveling, together with vacations. All these are matters which should be discussed frequently, frankly, and minutely with the patient. The value of frequent periods of cessation from work, or indeed periods of absolute cessation from work with rest in bed, cannot be overestimated. A single rash act may destroy compensation.

When, however, compensation fails there is quite another problem to face, and whether such failure be from overwork or some intercurrent affection, the treatment is practically the same. The patient must be put to bed at absolute and prolonged rest. There should be enforced use of the bed-pan, and absolute quiet, with a wholesome and nutritious diet. Here indeed a single rash act may be fatal. Mental quiet even must be insisted upon. The author has seen harmful effects from fits of anger. Medical treatment is purely symptomatic. Complications, such as dropsy and passive congestion of other organs, or recurrent febrile attacks, as of inflammatory rheumatism, must be treated as at other times, but with more vigor. The simple febrile condition of itself is not always harmful, and, as observed by another, has even been of ultimate advantage. For dropsy, sweating and purging with at the same time the use of diuretics are urgent. For cyanosis venesection has been used with advantage, but for failing compensation, together with irregular heart action, digitalis is the drug *par excellence*. Occasionally one hears an outcry against digitalis in this affection, but it has so many staunch supporters, and the author has seen so much good from its use, that he asserts he would not feel safe in substi-

tuting any other remedy for it. At times the stomach does not bear the remedy well, under which circumstances a preparation of the tincture known as "fat free" is perhaps more easily tolerated. He has used the tincture in 5- to 15-drop doses continuously for weeks, and when there was a tendency toward cyanosis, with feeble, irregular pulse, he has used larger doses of 20 to 30 drops and even more for 10 to 14 days, or until its effect was marked on the pulse. The author has never noticed cumulative effects from digitalis and doubts such action. One of the patients reported by the author has used digitalis more or less continuously in fair doses for six months. Another required big doses for several weeks before the desired full, steady pulse was acquired. Other remedies which are used with advantage in failing compensation are strychnine and caffeine, and to these the author adds several other remedies which he has found of great service, especially in the convalescent stage. They are the iodides, iron in the form of the syrup of the iodide, and arsenic. They have a good alterative and tonic effect. During this stage, he has found it beneficial to use arsenic more or less continuously, and to alternate digitalis with some form of the iodides, each succeeding week. As these patients are often somewhat anemic the iron and arsenic are especially useful. Broadbent has called attention to the great value of arsenic and phosphorus in aortic regurgitation.—LICHTEY, in the *Cleveland Medical Journal* for January, 1905.

AORTIC STENOSIS.

In the *Clinical Journal* of January 4, 1905, PRICE states that when we come to treatment he does not think that the importance of careful treatment in valvular diseases is sufficiently estimated. It is true that we cannot cure a stenosed valve, but it is none the less true that we can by therapeutic measures often extend the life of a patient by several years. If a person is suffering from an attack of acute endocarditis, we should keep him in bed or in the recumbent posture for some weeks after the attack is over, so as to give the heart a sufficient opportunity for compensatory hypertrophy. After

this our guiding star regarding the amount of exercise or labor we should allow our patient should be that such exertion must not be attended with any undue breathlessness or exhaustion, particularly the latter. Furthermore, we should warn the patient to enter upon the exercise gradually; and therefore it is a good thing, for example, for him to commence going up a hill or upstairs at a slower rate than walking on the level. If the patient is rheumatic, he should carefully attend to this so as to prevent if possible any further damage being inflicted to the stenosed valve. The meals should be fairly equal, because large meals cause considerable variation in the blood-pressure. Of course, very strict moderation in regard to alcohol is necessary; it is really better that the patient should be a teetotaler. It is most important to attend to the condition of the bowels. Accumulation of fecal matter in the intestines causes flatulent distention of the bowel, which by pressing on the diaphragm embarrasses the heart. This is one of the most frequent causes of palpitation. In those cases which are not the result of acute endocarditis, but which are due to sclerosis, much benefit is often obtained by the long-continued administration of moderate doses of iodide of potassium, whether the sclerosis is due to syphilis or not. It should always be tried. The two great cardinal points which we should remember in the treatment of this disease are, first, to avoid anemia at all costs; secondly, to prevent high arterial tension. Anemia should be avoided in order to prevent as far as possible the tendency to fatty degeneration by supplying the heart with rich blood, and the obvious reason for endeavoring to prevent high arterial tension is because the obstruction already existing is added to by any peripheral resistance. Alcohol and excesses of food should be avoided, especially food of a highly nitrogenous character. Potassium iodide and nitrite of sodium are the most useful drugs. When compensation begins to fail rest in the recumbent posture is absolutely essential. Rest is by far the most efficacious therapeutic measure we have at our disposal in the treatment of valvular disease. Other remedies are of little avail unless the patient can rest. Freedom from men-

tal work or worry is also highly important, for the brain is a very vascular organ. Regarding digitalis, opinion is divided as to whether it should be given or not. We must remember that we are dealing with obstruction in front of the left ventricle, and digitalis by its action in contracting the peripheral vessels increases the obstruction; indeed, its administration may in some cases be the direct cause of sudden death. When the loss of compensation is mainly shown by defective driving power, and is manifested by such symptoms as faintness, giddiness, or anginoid attacks, there is no doubt that it may do harm. But on the other hand we may derive some benefit from its administration, if the symptoms are chiefly due to backward pressure—in other words, when the symptoms and physical signs point to mitral incompetence. In the main, however, it is better to rely on iron, arsenic, and strychnine, and when the symptoms are indicative only of defective propulsive power, especially if there is accompanying high tension, vasodilators are strongly indicated. When the patient complains of pain and palpitation we should treat any possible flatulence either of the stomach or intestines, and reduce the blood-pressure if it is high. A belladonna plaster applied to the precordia is useful. Should these means fail, morphine may be necessary.

The sleeplessness is often very troublesome. Paraldehyde in doses of from 3j to 5ij is a splendid drug for this purpose. Its taste is partly concealed by giving it in milk. Trional is good, as also is chloralamide given in hot liquid. The author has found great benefit derived from the administration of tincture of henbane in 5j doses in a little hot brandy. This often acts like a charm. Should these means fail, and there is no kidney disease or cyanosis, morphine is strongly indicated. It acts much better when given hypodermically. If the patient suffers from vomiting, stop the digitalis if you have been giving it. Bismuth and hydrocyanic acid may be of service; but if the vomiting is severe, try peptonized milk in 5j doses every hour, milk and lime-water, or iced champagne.

When mitral incompetence has set in, and there are all the symptoms of back-

ward pressure and failing right heart, we should treat the patient as we would treat any other case of mitral disease.

THE X-RAY TREATMENT OF LEUKEMIA.

To the London *Lancet* of January 14, 1905, LEDINGHAM and MCKERRON report the results of this plan of treatment.

A careful analysis of the recorded cases shows, with one or two exceptions, that all the patients suffering from myelogenous leukemia experienced under x -ray treatment remarkable improvement both in the objective and subjective symptoms. At this stage, however, it would be quite premature to presume that the improvement will be a permanent one. Nearly all the observers have been so surprised at the almost immediate effect of x -ray treatment on the blood, splenic tumor, and general condition of the patient that they have published their results forthwith. When these so-called "cured" cases and those in which marked improvement has resulted have been under observation for some considerable time, with or without renewal of the treatment, we shall be in a better position to judge of the true value of this novel therapeutic method. Thus Senn, in a letter (March 20, 1904) to Grosch and Stone, reported that his two cases of pseudo-leukemia were well, and the case of myelogenous leukemia which made such an excellent recovery had returned with a moderate relapse and was again under x -ray treatment. At present, however, we can have no doubts regarding the more or less rapid effects of x -ray treatment on the blood picture, the splenic tumor, and the general condition. In some cases (notably Senn's and Bryant and Crane's first case) the leukemic blood picture is said to have entirely disappeared, while most of the observers, including the writers, have been enabled to record only a rapid fall of the white cells to a normal or approximately normal level, this fall being invariably accompanied by a great diminution in the myelocyte percentage and a corresponding rise in the polynuclear percentage. In other words, the essentially leukemic character of the blood has shown a tendency to disappear, but not entirely. De-tailed blood-counts have, however, been

recorded in only a few cases. A very satisfactory feature has been the almost invariable rise of the red cells to a higher level, while the leucocytes fell. This feature was notably absent in the cases of lymphatic leukemia, where, it must be confessed, the general results of the x -ray treatment have been only fairly satisfactory. Undoubtedly in this disease also the lymphocytes are very markedly reduced under the influence of the x -rays, though there does not invariably occur that modification in the leucocytic formula which is so marked a feature in the myelogenous cases. The splenic and glandular swellings of lymphatic leukemia and of pseudo-leukemia (Hodgkin's disease) are also susceptible to x -ray treatment. It is curious that the general condition does not appear to improve so noticeably in lymphemia as in myelemia. Possibly, as Capps and Smith remark, many of the cases of lymphemia treated with the x -rays have been running an acute or subacute course and are therefore not so readily influenced by radiotherapy. Capps and Smith also state that the chronic form of lymphatic leukemia responds to the x -rays even more promptly than the splenomyelogenous type. The effects produced by radiotherapy on the splenic tumor in myelemia have been variable. Senn, Bryant and Crane, and Ahrens reported an almost complete disappearance of the splenic tumor, while others have been content to record only a moderate reduction in volume. In a few cases the only change was one of consistence, the tumor becoming much softer and more easily palpated. It must be remembered, however, that a slight reduction of volume in such an enormous splenic tumor as that found in leucocythemia is rather difficult to certify clinically, and there is little doubt that the ultimate result of x -ray treatment on the splenic tumor will depend largely on its histological features initially.

When fibrosis has occurred in the later stages of the leukemic spleen it is doubtful in the light of Heinecke's results whether much reduction in volume can be expected. However, we shall have to await the results of further work before any dogmatic opinions can be expressed on this point. In nearly all the cases, except those of lymphatic leukemia, there was a very marked improvement in the

general condition and well-being of the patient, and this is perhaps the most satisfactory element in the treatment by radiotherapy, for leukemia has almost invariably progressed towards a fatal conclusion.

The authors finally discuss briefly the theories which have been put forward to explain the mode of action of radiotherapy in leukemia. Naturally this subject is as yet in the early experimental stage, but already one or two important contributions have been made towards the elucidation of x -ray influences on the blood-forming organs. Senn believes that his results in leukemia were due to an antiparasitic action on the part of the x -rays, and to those who sympathize with Lowit's views on the etiology of leukemia this explanation of Senn may appear fairly plausible. To Heinecke's work we have already referred. His results appear at least to afford a physiological foundation for radiotherapy in leukemia, in so far as the excess of white cells in the circulating blood and the presence of abnormal cell elements are concerned. But this is, after all, only a symptom. Whether the x -rays directly influence the exciting factor in leukemia is another question. Further, the bone marrow is probably the tissue whose function is primarily at fault, and Heinecke's remarks on the effect of the x -rays on the bone marrow have been called in question lately by Mosse and Milchner as being too vague. These latter observers, working with rabbits, have found alterations in the lymphoid and myeloid elements of the marrow under the influence of the x -rays. These changes consisted in a partial destruction of the white cells of the marrow, while the protoplasm of the neutrophile cells especially showed a great deficiency of granules. Curiously enough, the red cells, nucleated and non-nucleated, were not affected. The authors argue from these facts that there is a field for radiotherapy in leukemia, but not in pernicious anemia. These facts are interesting in the light of the results of x -ray therapy on the red cells in the cases of splenomyelogenous leukemia. It was found that the red cells invariably rose to a higher level as the leucocytes fell. We must remember, however, that remarkable variations may occur in the red counts from day to day in cases of leukemia which are not under any special treat-

ment. The authors were particularly struck with this fact in their case during the months preceding the adoption of x -ray treatment.

Joachim and Kurpjuweit and Moses and Milchner have respectively subjected leukemic blood and normal blood-corpuscles in salt solution to the direct action of the x -rays, but no changes of any kind were noted either in the leukemia blood elements or in the normal red blood-corpuscles. These experimental results would seem to point to the necessity of subjecting all the bone marrow in the body to the influence of the x -rays—i.e., on the supposition that leukemia is primarily a bone-marrow disease. Failure to do so may have been the cause of the generally incomplete response of the myeloma to the x -rays, for, as noted above, the leucocytes sank under the influence of the x -rays to a very low level, while the myeloma picture, though much modified, still remained; and further, on the cessation of x -ray treatment after this low leucocytic level had been reached, there was a tendency on the part of the leucocytes to rise slightly. This was noticeable in the author's case. After the leucocytes came down to a level of 20,000 per cubic millimeter in their patient no amount of exposure of spleen and epiphyses to the x -ray would produce a further reduction.

It has been shown by Lepine and Boulad that enzymes can be influenced by the Roentgen rays, and in the light of Ehrlich's view that in myeloma there exists a chemiotactic enzyme in the blood, it is possible that the destruction of this enzyme prevents the further inroad of leucocytes into the circulating stream. However, as Joachim and Kurpjuweit maintain, the x -rays in leukemia do not act directly on the blood but on the diseased leukemic tissue. These observers in a fresh case of leukemia exposed only the liver area to the rays, but there was no result after fourteen successive daily séances. It was also shown that exposure of the spleen only produced a great fall in the leucocytes in the first case described by them, while later exposure of the bones only was also successful. The authors intend in their next case of leukemia to begin by exposing the bones only to the x -rays. In fact, it is possible that the comparative effects of radiotherapy on the bone marrow and the spleen may add

much to our knowledge of the pathology of leukemia.

The authors refer to one other possible explanation of the action of the x -rays. It has been shown by Schwarz that radium rays have a destructive action on the lecithin of the hen's egg, and as lecithin is an invariable constituent of cells undergoing rapid development, as leucocytes, spermatozoa, and tumor elements, the reduction in leucocytes in leukemia by the x -rays may be due to a similar cause. The presence of lecithin bears so important a relationship to the development capacity of the cell (Hoppe-Seyler) that its disintegration would be fatal to further cell development.

Wohlgemuth does not find that radium has a selective action on lecithin. He thinks rather that the breaking up of the lecithin in egg albumen is due solely to the influence of autolytic ferments contained in the egg. The action of these rays on living tissues and cells opens up a very wide field for research, for as yet the science of experimental cytology is in its infancy.

ACTION OF ADRENALIN.

NEUJEAN, working in the Therapeutic Institute of the University of Liege, has made an elaborate experimental study of the action of adrenalin (*Arch. Internat. de Pharmacodynamie et de Therapie*, vol. xiii, fascic. 1 and 2, 1904, p. 45), of which the following are the conclusions: The acceleration of the pulse which succeeds the initial retardation after injection of adrenalin in an animal is due to excitation of all the accelerator apparatus of the heart, as much central as peripheral. The participation of the central apparatus is not indispensable for this acceleration. The cerebral vessels, like all other vessels of the body, contract under the influence of adrenalin, and this lasts as long as the adrenalin is in action. The increase in the volume of the brain following an injection of adrenalin is probably due to a venous stasis depending on slowing of the pulse and a momentary arrest of respiration. The vasomotor center takes part in the production of high blood pressure by adrenalin only secondarily, and this from the cerebral anemia provoked by the constriction of

the cerebral vessels. The slowing of the pulse observed to follow the injection of adrenalin in an animal whose vagi are intact appears to be due to two factors—a direct action of the cardio-inhibitory center, and a secondary action produced by the irritation of this center by the cerebral anemia set up by the constriction of the cerebral vessels. Adrenalin, without doubt, acts on the intracardiac terminations of the vagus, producing their excitation, which is demonstrated by the slowing of the heart which follows its injection into an animal whose vagi are divided. Adrenalin acts directly on the respiratory center, producing inhibition. The dyspnea which follows the apnea produced by the injection of large doses appears to be rather due to the secondary excitation of the respiratory center by the cerebral anemia. The fact that adrenalin may be destroyed in the organism by oxidation is far from being demonstrated.—*British Medical Journal* of January 28, 1905.

SOME THOUGHTS ON CONVULSIONS DURING INFANCY AND CHILDHOOD.

In the *Lancet* of January 21, 1905, ASHBY in an article with this title says that to attempt to discuss the treatment of convulsions would mean discussing the treatment of the many diseases or conditions with which convulsions are associated. This the author does not attempt, but contents himself with making a few remarks. As far as the acute stages of tonic and clonic spasms are concerned we shall find subcutaneous injections of morphine the most powerful remedy for quickly allaying the irritability of the nerve centers and checking the convulsive movements. This is true whether colic, meningitis, or laryngismus is associated with the convulsions. A strong infant, six months old, may be given one-fortieth of a grain, and an infant one year old one-twentieth, subcutaneously. Avoid the use of morphine in wasted and feeble infants, and also in newly-born or very young subjects. Inhalation of chloroform is another quickly acting remedy, but its action soon ceases when withdrawn. Chloral given by the rectum is slower in action, but its effect is more durable. Four or five grains of chloral dis-

solved in water or in egg-and-milk mixture may be given to an infant aged from six months to a year. The bromides are too slow in action to be of any use during the fits, but later mixed bromides may be given to prevent their recurrence. It is wise in all cases to give calomel by the mouth if the patient can swallow, to clear away any foul curd or irritating matter in the intestines.

What can be done to prevent the continued and dangerous irritability of the nerve centers? The author has at times seen infants with simple laryngismus enclosed in steam tents, in hot stuffy rooms, where no outside air has been admitted for weeks. We shall all agree that instead of being kept in a used-up hot-house atmosphere they ought to have been enjoying the breezes on the seashore. What we want is a hardening and bracing up of the nervous centers and an improved condition of health. For this purpose a hot-house atmosphere is the worst possible. No doubt too great changes of temperature are not to be recommended all at once, especially in those cases where laryngismus is associated with laryngeal or bronchial catarrh. Give the child a warm bath every morning, and then sponge or douche him with cold salt water, taking care to rub dry and get a reaction. Give him more and more fresh air every day, and get him off to the seaside as soon as possible. The success which has attended the open-air treatment of the pneumonias, whooping-cough, and measles should open our eyes to what can be done in this direction in other diseases, such as the functional diseases of the nervous system, during early life. In all forms of convulsions, especially those associated with rickets, open-air treatment is likely to be successful. There can be no difficulty in summer in keeping the infant out all day and supplying him with fresh air freely at night. In colder weather great attention should be paid to the clothing, keeping the feet warm, and sheltering from high and blustering winds. If these matters are attended to let the patient be outside in the coldest weather. The diet must be carefully regulated; infants suffering from convulsions are often given too much milk; their stools are foul and pale; intestinal intoxication plays an important rôle alike in rickets, convulsions, and epilepsy.

What are we to advise with regard to the fits of older children, whether admittedly epileptic or belonging to a borderland class, which we call "reflex fits," but with a certain mental reservation? Diet is of great importance and a careful consideration of the idiosyncrasies of the individual. Speaking generally, a mixed diet, moderate in amount, avoiding overfilling the stomach and overworking the digestive organs, will answer best in the long run. To forbid meat and to allow the child to take large quantities of starches and sugar is bad policy. Heavy meals of oatmeal porridge, rice pudding, and bread-and-butter are likely to lead to intestinal fermentation and distention of the abdominal organs with gases. It is well in the first place to cut down the starches by forbidding porridges and puddings and allowing only small quantities of bread-and-butter. Cocoa, with egg and toast for breakfast, a reasonable quantity of beef or mutton or poultry for dinner, with cooked vegetables and stewed fruits; and cocoa, toast, and treacle or honey for tea. Some children are given too much milk; mothers will boast that by hook or by crook they get into their children a quart of milk a day in addition to their meals and expect to be commended for their motherly instincts. Then they say that the child has lost his appetite, and meat essences and raw beef juice are given at odd times; if these fail to cure the child they suggest a tonic and port wine at 11 in the morning. All these maternal insanities have to be combated, a carefully selected and frugal diet has to be prescribed, some cascara in divided doses or a saline mineral water, to secure regular and fairly free evacuation of the bowels.

ON THE PRINCIPLE OF REST IN THE TREATMENT OF GASTRIC ULCER.

At the close of an article on this topic in the *Scottish Medical and Surgical Journal* for March, 1905, BOYD arrives at the following conclusions:

The circumstances under which, as a physician, one would advise surgical interference in chronic ulcer are as follows:

1. In chronic gastric ulcer with pyloric stenosis, gastroenterostomy by relieving the pyloric stenosis and resting the ulcer will effect a cure.

2. In chronic gastric ulcer without pyloric stenosis, if the ulcer be situated on the pyloric third of the stomach, gastroenterostomy may effect a cure by giving the ulcer rest.

3. It does not tally with present experience that gastroenterostomy will effect the cure of an ulcer situated outside the pyloric third.

The routine performance of gastroenterostomy, as has been advocated by some surgeons, irrespective of the situation of the ulcer, is to be deprecated. Such patients improve under the careful dieting and rest of the stomach which is observed after operation, but relapse of the ulcer is to be expected. In such cases, if the surgeon can excise the ulcer, benefit may result; a simple gastroenterostomy will probably only result in disappointment.

ON ZOMOTHERAPY IN PULMONARY TUBERCULOSIS.

Under this heading PHILIP in the *Lancet* for January, 1905, tells us of the mode of exhibition of raw meat. It may be convenient in the foreground to indicate the forms and dosage in which raw meat has been exhibited. These are as follows:

(1) Pounded raw meat, *i.e.*, finely minced or bruised beef (mutton was seldom employed) slightly seasoned with salt, etc., according to taste, served like mince collop, cold or gently warmed throughout, say half a pound twice or thrice daily. Much advantage is to be had by using the meat perfectly fresh. Impressed by his experience, he has endeavored to obtain the meat direct from the slaughter-house. For a time he made use of ox-heart, which was more easily obtainable quite warm. This latter proved, however, less acceptable to the patients than ordinary raw meat, which is easily taken as a rule.

(2) Beef-juice prepared as follows: Extract $\frac{1}{2}$ pound of meat in $\frac{1}{2}$ pint of cold water plus $\frac{1}{2}$ teaspoonful of salt, for $1\frac{1}{2}$ to 2 hours at 100° F. Express the liquid through a cloth, and serve. Or the juice may be expressed from the meat directly without the addition of water. This requires more powerful pressure. In either case the meat-juice must be freshly prepared before use, for, as Hericourt and Richet have shown, it speedily undergoes changes which detract from its

value and tend to cause irritation of the gastrointestinal tract.

(3) Raw meat soup, prepared as follows: Take $\frac{1}{2}$ pound of finely minced fresh meat and mix in a bowl with sufficient milk to produce a thick, uniform paste. Immediately before serving add $\frac{1}{2}$ pint of milk at 150° F. In place of milk the soup may be made in similar fashion with stock of beef or chicken or veal.

(4) Though not strictly in the same dietetic category, the author includes raw eggs. Recently he has prefaced patients' meals with one, two, or three eggs swallowed like oysters. Here, again, advantage is to be gained from the eggs being quite fresh, *i.e.*, newly-laid. The eggs should not be switched or mixed with milk or other ingredient, apart from a slight sprinkling of salt or pepper.

In cold weather the chill should be taken from all these by gentle exposure to warmth immediately before use.

THE PRINCIPLES OF THE TREATMENT OF PNEUMONIA.

EWART in the *Lancet* of January 21, 1905, gives us some practical details in the application of the principles of treatment.

For the shock of the invasion immediate recumbency, warmth, and a small dose of ether or brandy with hot water are indispensable, and some soothing draught is most desirable, such as ammonium bromide with aromatic spirit of ammonia and from five to ten drops of solution of morphine in chloroform water to prepare the patient by rest for the active measures which cannot be delayed. A dose of calomel is to be administered at once and to be followed half an hour or an hour later with a senna draught.

Cardiac treatment is our next thought. Arrangements must be made for the immediate supply of oxygen, which is needed for continuous administration. If oxygen is worth administering in desperate states and to the dying, why should it be neglected as a profitable adjunct to the active measures of the early stage? Its continuous administration would be a valuable help to the heart against the fatigue inseparable from them. It has over the continuous administration of alcohol the advantage of being harmless and of not com-

plicating the alimentary situation. There is an apparent contraindication in the two recommendations, to diminish the number of the oxygen carriers by leeching and to supply oxygen artificially, but of course both for lung and heart relief these are converging lines. In connection with oxygen a practical point is to avoid the glass funnel which has been so generally recommended, as it is the most unsuitable of appliances. The "mask" works better in preventing diffusion of the oxygen away from the patient, but it is intolerable to him. The best means is to place the end of the tube itself between the lips or immediately in front of the mouth, or preferably to use Mr. George Stoker's excellent plan of a soft india-rubber nostril-piece, which is self-retaining and convenient.

Pneumonia is *par excellence* the field for discussion of the merits of bleeding. But the author only alludes to the fundamental question as to whether the bulk and the quality of blood which are needed in the full activity of health are in themselves, or are not, an encumbrance in the prostration of the functions by acute diseases, because this bears closely on the question as to when to bleed. Clinical observation bears out the ancient belief; but whereas our predecessors both starved the blood and drained it, some of the modern teaching urges us to withdraw blood on the one hand, and to promote blood-making by assiduous feeding on the other. The pain often severely felt on the side of the lesion is relieved so invariably by leeching that the most timid will feel justified in prescribing the latter, particularly as the relief is usually permanent, unlike that from the application of ice or of fomentations. Under the convenient excuse of relieving the pain something more has then been done for the patient beyond the mere soothing of nerve endings. So much impressed is the writer with this advantage that he makes leeching a routine of treatment quite apart from the question of pain. The stronger measure of bleeding from the vein may be required in some cases, but it is a more serious undertaking in the sick-room, and viewed all around is not, perhaps, so desirable as leeching, which is less likely to raise any objection. It is rather doubtful whether it should be resorted to after consolidation has occurred except as a

desperate remedy—a “measure of rescue” from imminent heart failure. The pneumonic patient may well spare a little blood at first; he certainly cannot spare much during his deepening prostration. In this matter, as in others, let us remember to discriminate between the “clinical days” of pneumonia. That which is good or bad on the one day may be just the reverse for the other day. For the present the writer’s own position is that abstraction of blood, preferably by leeching, is of great value and of value in proportion to the early date of its employment, before the deposition of fibrin. Its function should be to cure rather than to resuscitate, and any loss which it may entail should be inflicted not upon the advanced stages of exhaustion but upon scarcely yet diminished reserves of health. Therefore do not delay making the needful preparations for the application of leeches.

Sweating, already invited by some of the previous measures, might be promoted more actively by a hot-air bath continued to the lower extremities, or by De Lancey Rochester’s device of a hot mustard foot-bath administered in bed; but internal medication can do what is wanted without any unnecessary fatigue to the patient, and we now come to the question of medication. Its chief aims are diaphoresis, diuresis, and fibrinolysis, and absorption. These may be combined in the mixture, which is to be repeated every hour or even every half-hour at first to insure rapidly the results in view. The writer has given antimonial wine, aconite, and green hellebore with none but good results, but simpler remedies may be good enough for our purpose. Leaving aside all so-called vascular depressants and even citrate of potash, the writer now trusts to the free use of the ammonium citrate, which fulfils concurrently another good purpose. Sweet spirit of niter may be added to the mixture, and the sweating is to be encouraged by warm beverages and one or two doses of gin.

Diuresis.—This object is well served by the agents just mentioned. It is doubtful whether any stronger ones are needed. As a fact renal permeability is not conspicuously reduced by pneumonia. Our object is gained if plenty of fluid can be passed through the blood and excreted by the skin and by the kidneys without the complication of many drugs. It is the

author’s preference at present to avoid any possible risks from the use of digitalis and the depressing effects which may attach to the nitrate and to the acetate of potassium. But he is inclined to give further trial to divided doses of calomel, less perhaps on account of its diuretic action than for the sake of its beneficial effect upon absorption.

Cardiac improvement is obtained at this stage rather by diminishing than by increasing the cardiovascular contents, lowering rather than raising the peripheral vascular tension. This has its bearing upon diet and upon the choice of drugs and the use of narcotics. Alcohol is useful both as a cardiac stimulant and also perhaps as a food; and gin has an advantage over other forms of alcohol in its marked diuretic effect. The writer has already insisted upon the value of oxygen as affording direct support to the heart, and he repeats that acute heart failure is not among the probable dangers of the first day. But to restore the heart’s strength nothing is equal to sound sleep.

It is fortunate that one of the best checks to coagulation is offered by citric acid as a precipitant of calcium, which is essential to clotting. The carbonates also tend to keep the blood fluid, but they are to be avoided in pneumonia, as in rheumatic fever and enteric fever, because of the recurring gastric inflations to which they give rise and which in pneumonia are even more detrimental to the heart than to the stomach. Fluidity of the blood is also favored by iodide of potassium, as evidenced by the purpuric eruptions of iodism and by the fact that aneurisms after prolonged treatment by large doses of iodide of potassium have been found after death absolutely free from laminated clot.

Iodide of potassium is the last drug to be mentioned in the writer’s prescription for this stage, but so great is the value which he attaches to it as a solvent and an absorbent of fibrinous deposits that he continues its administration to the end of the attack. He has prescribed it to the extent of sixty grains a day and more, but the question of its dose has yet to be determined. This treatment is not absolutely novel, for the author was interested to read that it has been used largely and strongly advocated by Altshul. Indeed, it is the latest of the “specific”

treatments. Altshul and his followers report excellent results from large progressive continuous doses, which are run up to an enormous total, as much as three thousand grains having been administered to some of their patients in one day. The results reported are good. The temperature is lowered and the attack invariably terminates by lysis. We need not imitate the liberality of these administrations. They afford, however, a welcome support to the use which the author has made of the remedy, as they show that there is often an extraordinary toleration for it in pneumonia. Perhaps the average dose may be materially increased. For the present the prescription which he uses for the first day is somewhat as follows for the adult, and the same reduced for children:

℞ Potassium iodidi, gr. v;
Liq. ammon. cit., ℥ii;
Spirit. æther. nitrosi, ℥ss;
Spirit. ammon. aromati., m. xx;
Aquæ chloroformi, q. s. ad ℥ss.

Ft. mist. One tablespoonful diluted to be taken every hour for six doses, and subsequently every three hours.

℞ Hydrarg. subchlor., gr. 1/6;

Ft. pil. parvula. One pill to be taken every four hours.

The writer thinks that alcohol is indispensable from the first, in moderation, as a stimulant and as a food substitute. The patient is at first neither anxious nor fit for food. There is a double purpose in the temporary avoidance of highly nutritious supplies: (1) digestion has to be rested and the alimentary mucous membrane has to be cleared; and (2) gastrointestinal fermentation must absolutely be avoided as one of the early obstacles to recovery and later as one of the worst dangers. The risks of comparative starvation are as nothing in comparison. As a fact water is more urgently indicated than food. The more water we can place in the diet the more harmless and suitable it will be both as food and drink. But in addition to this purpose of protection there may be a curative value in fasting if fasting should cause that excess of the available constituents of the blood apt to supply the exudation of fibrin to be claimed instead as tissue food by the entire economy. In that way diet is allotted its active share in the deobstruent plan. Milk is too nutritious and

too heavy. Whey is preferable, as it gives no heavy coagulum to keep up fermentation, and for the first day or two the author abstains from fortifying it by the addition of white of egg. As soon as progress toward recovery is established food comes in as the best and only necessary medicine.

Under the heading of diet also comes the question of the supply or withdrawal of the chlorides in the food. It has been held that the disappearance of the chlorides from the urine was in part due to their being detained in the fibrin; this, if correct, would open a question as to the relative value of two opposite lines of diet. First, whether the solidification of the fibrin would be impaired by our diminishing the supply of salt; and secondly, whether a plentiful supply of salt might not be the means of providing a useful constituent to the blood and restoring the urinary chlorides, and of benefiting the patient whatever the effect on the consolidation might be. For a reply to this question the author asserts that he has not sufficient clinical experience. In this case the practically complete withdrawal of salt from the diet did not seem to interfere with satisfactory improvement, but in other cases he has obtained results even more striking without dechloridation.

After this active work of the first day rest is well earned, though the patient may probably feel relieved rather than fatigued. Just as the first day presents no major risks of heart failure, neither is the first night unsafe for a soothing draught of morphine. The bowels have been relieved; the ways are open. No harm is likely to accrue from the dose, and the patient will probably wake with manifest signs of improvement. During the second day the same medicine may be continued. Three grains of quinine in pill or powder will be a useful addition to each dose. Four ounces of alcohol, or perhaps six, will be required, but the diet cannot be much increased. The whites of two or three eggs can be added to the whey and the yolks beaten up with gin or brandy. A quarter of a pound of sugar should also be given in the whey. A sleeping draught may be required if the patient is restless. On the third day and subsequent days individual differences become prominent. Some will be on the

high road to recovery; for others the struggle is deepening. In both cases, but chiefly in the latter, support is now becoming the main indication. The heart must be fed as well as stimulated. We must make sure that the food is such as will be absorbed. Raw meat juice, strong gravy, malt extract, or predigested foods and eggs beaten up should be substituted for the whey, and good milk given in tea or thickened with cocoa. Oxygen must be continued, and strychnine frequently injected in anxious cases. In the safe cases the latter may be included in a fresh mixture with carminatives, and iodide of potassium and quinine should also be administered.

THE INFLUENCE OF ALCOHOL ON THE SUSCEPTIBILITY OF RABBITS TO BACTERIAL INFECTION.

Experiments conducted by Professor FRAENKEL, of Halle (*Berliner Klinische Wochenschrift*, January 16, 1905), tend to show that alcohol, if properly administered, increases the resistance to certain forms of infection. The experiments in question which relate to the bacilli of cholera and typhoid fever were conducted upon rabbits and guinea-pigs. Cultures of cholera bacilli as well as the toxin of these organisms were injected into rabbits, and shortly afterwards a dose of alcohol was administered. Seven days later the blood serum of these animals was obtained, and its protective power against cholera infection in guinea-pigs tested. It was found that the blood serum of the rabbits which had received alcohol subsequent to inoculation with the cholera bacilli possessed greater antitoxic properties than that of animals which had not received alcohol. Another series of experiments were carried on in which rabbits were given alcohol daily for several weeks before they were inoculated with cholera bacilli. The blood serum of such animals was found to have weaker antitoxic properties than that of the ones which had received only a single dose of alcohol after inoculation with the microorganisms. It was, however, more protective than the serum of animals which had not received any alcohol, a fact which Fraenkel considers to be the most interesting derived from his experiments.

The general results obtained from similar experimentation with typhoid bacilli were the same as those above described. Details of the experiments with both organisms are given in full. Although Fraenkel states that we should not infer like conditions to obtain in man he considers the results of his experiments of sufficient value to warrant further investigation.

ADRENALIN IN UTERINE HEMORRHAGE.

STEINSCHNEIDER, of Franzenbad, recommends (*Münchener Medizinische Wochenschrift*, January 10, 1905) local applications of adrenalin solution in cases of uterine hemorrhage not dependent upon gross anatomical changes in the uterus or adnexa.

Although his conclusions as to its value are derived from only three cases, the results obtained were uniform. Two of the patients treated had been suffering two years from severe menorrhagia, which failed to yield to the ordinary remedies, such as ergot, hydrastis, and stypticin, and which, moreover, were not at all benefited by curettement. Hot irrigation of the uterus also failed to control the bleeding. In the case of the first patient, who generally bled ten or twelve days at a time, hemorrhage was arrested on the fourth day after its onset by an intrauterine application of adrenalin made on cotton wound around a Playfair sound. The same method was used in the other cases.

All the patients were able to continue with the bathing cures which had been prescribed, and all were apparently restored to health.

INTRAVENOUS SALICYLATE TREATMENT AND ITS DIAGNOSTIC SIGNIFICANCE.

Further experiments with intravenous injections of the salicylates have convinced FELIX MENDEL (*Münchener Medizinische Wochenschrift*, January 28, 1905) that this form of treatment is the quickest and safest at our disposal for the control of rheumatic pains and the removal of fluid exudates from the joints, that it is free from all the unpleasant after-effects produced by the internal use of the salicylates, and that it is effectual in

many cases in which internal medication fails. The best results are obtained in cases unassociated with fever. Mendel's experience covers more than 8000 injections, and he states positively that there is no danger of producing either local or constitutional disturbances if proper technique be observed and a suitable preparation of the salicylates be chosen. A special syringe which he had made by H. and L. Lieberg, of Kassel, is described, and detailed directions for its use are given. The following preparation, of which the ordinary dose is 2 cubic centimeters at intervals of from twelve to thirty-six hours, is recommended:

R Sodii salicylatis, 8.0;
Caffeini-sodii salicylatis, 2.0;
Aquæ distillatæ, q. s. ad 50.0.

In severe cases as much as four cubic centimeters may be given at a dose. This preparation does not keep well, and should be made fresh as required for use.

According to Mendel the effect of these injections upon all rheumatic diseases is so specific that they may be used as a means of diagnosing obscure cases presenting some of the symptoms and signs of rheumatism. Several such cases are cited.

Intramuscular injections have been employed, but have not been found as satisfactory as the intravenous.

THE TREATMENT OF HEMOPTYSIS.

The *British Medical Journal* of January 14, 1905, contains an article by CATLE which he sums up as follows:

1. A good many patients with bronchitis or bronchiectasis occasionally bring up a little bloodstained sputum.

2. A special form of hemoptysis, which may be fairly profuse, was described by the late Sir Andrew Clerk as arthritic hemoptysis. It occurs in gouty, rheumatic, and often emphysematous patients of middle and advanced age, and depends on degeneration of arterioles and capillaries.

3. The hemoptysis of heart disease can generally be distinguished by appropriate physical signs.

4. Hemoptysis, either profuse or oozing, may be due to thoracic aneurism communicating with a bronchus. This disease may be almost entirely latent, but

should always be suspected where there is a brassy cough.

The treatment of the above forms of hemoptysis is the same as for hemoptysis in general, modified according to the disease in the course of which they occur.

The form of hemoptysis which we are most frequently called on to treat is that connected with pulmonary phthisis. Where no local cause of bleeding can be found we should act on the suspicion that tubercle is the cause. It has been estimated that 84 per cent of cases of hemoptysis subsequently developed tubercle. It might be expected that physical signs in the lungs would settle the source of the blood, but this is not by any means always the case. A small tuberculous focus may not be evident to the stethoscope, and blood in the air passages will not necessarily give rise to a râle. The patient with hemoptysis breathes as shallowly as possible, and we cannot tell him to cough in order to elicit physical signs. An examination of the chest may be necessary to assure the patient and his friends that he is not being neglected, but let us make it as short and perfunctory as possible, knowing how little it can benefit the patient, and how little we can learn from it.

In the mildest case of hemoptysis place the patient at rest in bed. He may come to us saying he has spat a little blood from his throat and make light of it. We need not overlook the possibility of the hemoptysis being non-tuberculous, but we know that in something like nine cases out of ten it is tuberculous if we can find no obvious cause. Therefore if the bleeding is only small we shall be acting in the patient's interest to make him rest in bed, for exertion will increase the blood pressure and add to the risk of increased hemorrhage. Hemorrhage in the early stage of phthisis depends either on capillary oozing or on the ulceration of one of the smaller vessels. Even when profuse it will generally cease spontaneously when the patient is kept at rest. In the later stages, after cavities have formed, the arteries sometimes resist the destructive process going on in the lung. Their walls are weakened, often dilated to form fusiform aneurisms, and they have lost the support of neighboring tissues. Under these circumstances hemorrhages are apt to recur frequently, and may be

fatal. One of the author's cases, an alcoholic subject, had a large number of these attacks, and finally died in a few moments from rupture of a pulmonary aneurism. Some authorities go so far as to describe a hemorrhagic type of the disease. Where this liability exists we must do what we can to correct such influences as alcoholic excess, to keep down the blood pressure, and alter the quality of the blood if that appears to be at fault.

For an ordinary hemoptysis of moderate amount it is a good plan to give a quarter of a grain of morphine hypodermically. This has the effect of quieting cough and calming the action of the heart. If we come on the scene, as is often the case, when the first gush of blood is over, the morphine should still be given to quiet the patient's alarm, which tends to keep up the circulatory excitement which we are anxious to allay. There is one exception to the rule of giving morphine—namely, when the bleeding is so profuse as to flood the air passages and suffocate the patient. In this case he should be encouraged to cough up the blood, and we can only hope that a condition of syncope setting in will bring about arrest of the bleeding.

The next most useful measure for the arrest of hemorrhage is free purgation. The watery evacuation produced by salines is an effectual means of lowering the blood pressure and so favoring the formation of a clot in the ruptured vessel. For this purpose a teaspoonful of sulphate of magnesium or sulphate of sodium should be administered, and repeated every hour or two until a good action has been obtained. But where the hemorrhage has already been so severe as to threaten life the purgative had better be omitted, as we must rely on maintaining the most absolute condition of rest. In these desperate cases the subcutaneous transfusion of saline fluid should be practiced, as it can be done without disturbing the patient.

Calcium chloride has acquired a reputation for increasing the coagulability of the blood. It may be given in 20-grain doses every four hours, and probably does good. In a markedly hemorrhagic case it is better to give the chloride for three or four days, and then leave it off for a week, and so on, giving it intermittently

for some time. Turpentine sometimes checks internal bleeding, but it is more effectual in melena than in hemoptysis, probably because some of the unabsorbed drug may come in contact with the bleeding point. The numerous class of so-called astringents—for example, alum, dilute sulphuric acid, gallic acid, etc.—probably have very little effect on account of their great dilution before they reach the seat of hemorrhage.

An ice-bag to the chest may do good by quieting the action of the heart, but it is rarely required. Cold to the surface is said to cause reflex contraction of the internal vessels, but this is doubtful. The injection of half a pint of gelatin solution into the rectum two or three times a day is said to do good. But the author suggests trying the effect of purgation first.

For many years, following the advice of an old teacher, the author used to prescribe a mixture containing ergot and gallic and sulphuric acids. Ergot is still recommended by several well-known authorities. The rationale of its action is that it acts on the muscular coat of the small arteries and causes their contraction. If it really has this action in medicinal doses, which the author doubts, it can only do harm, for the general rise in the blood pressure will more than undo any good arising from the local action of the drug. Probably its action on the arterioles in ordinary circumstances is inappreciable, hence the harmful effects are not so frequently seen as we might expect.

For the same reason I consider adrenalin should not be given with a view to arresting hemoptysis. Applied locally, it has the power of restraining hemorrhage and blanching a congested surface. Taken by the mouth it has a more certain constricting action on the blood vessels than ergot, but this action brings about a greatly increased blood pressure, which defeats the main object we have in view—namely, to maintain a low tension in the vessels so as to favor the formation of clot at the seat of the hemorrhage and prevent its being washed away by a new gush of blood. A much more rational plan of treatment is the inhalation of nitrite of amyl, as recommended by Hare, of Brisbane. The sys-

temic vessels being of much greater extent than the pulmonary, a general dilatation of arterioles will be accompanied by diversion of blood from the pulmonary circulation and consequent reduction of pressure. The author, however, prefers to try nitrite of amyl.

THE TREATMENT OF LUPUS ERYTHEMATOSUS BY REPEATED REFRIGERATION WITH ETHYL CHLORIDE.

While it is difficult to draw any very positive conclusions from observations based on the treatment of a small series of cases, yet we may conclude that repeated freezing of patches of erythematous lupus has a decidedly beneficial effect. In not a single one of the cases in which the author has tried it has it failed to produce a more or less marked improvement, and in some it was followed by the complete disappearance of the disease in limited areas. In conclusion, he believes that, when employed in conjunction with large doses of quinine internally, repeated refrigeration is an extremely useful procedure in the treatment of this usually very intractable disease.—HARTZELL, in *Journal of American Medical Association* of December 31, 1904.

CARE OF PUERPERÆ.

VOORHEES gives the following directions in the *Medical News* of January 14, 1905:

In the first place and of greatest importance is a continued asepsis after delivery. This falls to the lot of the nurse. When one is selected we must be just as sure of her asepsis as of our own. She should always regard the vulva and also the nipples in the light of clean laparotomy wounds, for then we know that all precautions will be taken against infection at these points. Her hands must be sterilized before doing the dressings, or she should wear sterile rubber gloves. The bed linen should always be clean, the douche pan scalded, and in doing the dressings the vulva should be washed by irrigation from above downward, the parts cleansed from within outward, and the anus swabbed last. For the first two or three days the author advocates a piece

of gauze, wet with a 1:10,000 bichloride solution, placed over the vulva beneath the sterile vulva pad, which is kept tight in place by a T-bandage. These dressings should be changed and the parts cleansed with every movement of the bowels and with each urination, at any rate regularly every four hours for the first two or three days. Early vaginal examination and douching are to be condemned. These procedures should only be practiced at an urgent indication. Nature is very reliable, and undoubtedly more harm is often done by meddlesome douching than when we leave things alone. Later in the puerperium, after ten to twelve days, hot douches undoubtedly help the involution of the uterus.

Directly after delivery the patient demands a refreshing sleep, and all relatives and friends should be excluded. If sleep does not come on naturally, chloral by rectum seems to act most effectively. If the after-pains are severe and interfere with her rest, codeine is generally necessary. But after-pains can usually be limited by a proper massage of the uterus, by expression of clots by the physician before he departs after labor, and the administration of ergot directly after the expression of the placenta. In some cases where the uterus continues to relax immediately after delivery, the author often gives an intra-uterine douche of acetic acid with good results. This is justifiable for those patients who suffer almost as much or even more from after-pains than from the pains of labor.

In the author's opinion the efficacy of the abdominal binder seems doubtful. For the first two or three days it does keep down the gas and supports the abdominal walls. In short-waisted women who have carried the child high and well out in front it certainly does prevent an anterior relaxation of the abdominal walls. But for women who carry the child low and well backward it is more or less unnecessary. Consequently if such cases are bothered by the binder after the third to fifth day he allows it to be discarded. Many women, however, are so anxious about their figures that they much prefer to be bound up and uncomfortable if by any chance the binder will preserve their graceful curves.

A fluid diet should be given forty-eight

hours after labor, or until the bowels move. Then a soft diet is allowed for a day or so longer, for the digestion is always below par. A cathartic should always be given on the morning of the third day, followed by an enema, if necessary. The bowels should move daily by injections, if small doses of cascara at night are not effectual. He does not agree with those obstetricians who allow their patients to sit on the commode within the first few days after labor, if there is difficulty in urination or defecation. Some patients have fainted in the act, and others have pleaded with the nurse not to carry out the doctor's orders, on account of their weakness. Besides, there is always the risk of a cerebral embolus. One case of this complication from the procedure in 100,000 cases would be enough to contraindicate it altogether. Catheterization, of course, is often harmful, but carried out when necessary under strict antiseptic precautions ought not to result in a cystitis. A great deal of trouble could be avoided by training the woman to use the bed-pan during pregnancy.

THE PRINCIPLES OF THE DIETETIC TREATMENT OF PULMONARY TUBERCULOSIS.

These principles are laid down by LATHAM in the *Practitioner* for January, 1905. He says that for the purpose of this article we may divide consumptives into two broad classes: (1) those who have a sound digestion and who are able to take exercise, and (2) those who are suffering from high fever or any disorder of digestion.

Patients who come under the first heading may be given the ordinary diet of health, together with an extra quantity of fat, and two or three pints of milk daily. If the weight is much below the normal, the total amount of food given should be increased to what it would be if the weight were normal. If the patient's weight is normal, it is a mistake to press unduly the amount of food, as this sometimes leads to a disastrous interference with the physiological balance of the cardiorespiratory functions and body weight. Bardswell and Chapman have shown by scientific experiment that very

large diets do not give good results. They have further shown that comparatively large diets are well borne by those who are much below their normal weight, but that they do not give such good results in patients with a normal weight. Bardswell and Chapman hold that a man, one stone under his normal weight of 11 stone, who is capable of taking some exercise, should be given 120 to 160 grammes of proteid, 140 grammes of fat, and 270 grammes of carbohydrates daily.

They divide the food as follows:

7.30: Milk, $\frac{1}{2}$ pint.

8.30: Milk, $\frac{1}{2}$ pint; bread or toast, 2 ounces; butter, $\frac{1}{2}$ ounce; 2 ounces fish or bacon, etc., and an egg.

11.00: Milk, $\frac{1}{2}$ pint.

Lunch, 1.30: Milk, $\frac{1}{2}$ pint; bread, 2 ounces; butter, $\frac{1}{2}$ ounce.

Dinner: Similar to lunch, but meat 2 ounces.

10.30: Milk, $\frac{1}{2}$ pint.

Cornet, who adopts a somewhat lower fat standard for the diet in health than Bardswell and Chapman, is in the habit of prescribing for his patients on the following lines:

First breakfast, 7 o'clock: $\frac{1}{4}$ to $\frac{1}{2}$ quart milk (cocoa or coffee), with one or two eggs stirred in, or gruel, or meat, bacon, bread and butter.

The second breakfast, 9 to 9.30: $\frac{1}{4}$ to $\frac{1}{2}$ quart milk, or 3 ounces strong wine (sherry, port, marsala), bread and butter.

Noon meal, 1 o'clock: Soup, entree, fish, roast venison, fowl, with vegetables, preserves and salad, pudding, bread, butter and cheese, 3 ounces red wine or $\frac{1}{2}$ pint beer.

Afternoon meal, 4 o'clock: $\frac{1}{4}$ to $\frac{1}{2}$ quart milk (cocoa) with one or two eggs stirred in, bread and butter (honey).

Supper, 7 o'clock: Roast meat, vegetables, cold meat (ham), roasted potatoes, bread and butter, 3 ounces wine or $\frac{1}{4}$ to $\frac{1}{2}$ quart beer or milk.

9 o'clock: $\frac{1}{4}$ to $\frac{1}{2}$ quart milk; 1 zwieback, cakes or bread.

More detailed examples might be given, but it is impossible in this article to go into detail with regard to particular dishes.

A few words may be said about the administration of alcohol in tuberculosis. In those cases where the digestion is good, the temperature is normal, and

exercise is possible, there is no necessity to give alcohol, although small quantities in many instances are of undoubted benefit. In some instances small quantities of alcohol will diminish the appetite and retard digestion, but in most cases it promotes both. Experience has shown that alcohol is of the greatest possible service when fever is present. It saves the body proteid, stimulates the appetite, and in small doses hastens gastric digestion. It facilitates the absorption of fat, and tends to slightly lower the body temperature. In addition, it stimulates the heart and the central nervous system, and favorably affects the night-sweats and the sleeplessness. When solid food cannot be taken, alcohol, the author believes, is our sheet-anchor. Physicians like Brehmer and Dettweiler, as the outcome of a very large experience, were in the habit of prescribing alcohol to a considerable extent. The alcohol should be pure and of the best quality. In febrile cases, and in some cases where the temperature is raised, red wine is especially useful. It may be given also with great effect in certain cases of tuberculous diarrhea. When the digestion is impaired, sound cognac, well diluted, is the best form of alcohol. When vomiting is present a good dry champagne gives perhaps the best results. Beer and stout are more useful in the febrile forms of the disease. With regard to the amount of alcohol to be given, this must depend upon the individual case.

TREATMENT OF CHRONIC ARTERIAL HYPERTENSION.

In the *Journal of the American Medical Association* of January 28, 1905, COOK says the treatment may be divided into two parts:

1. Early treatment, where a correction of the tension usually may be accomplished by dietary and hygienic measures.

2. Late treatment, where the administration of specific drugs supplementing the general treatment is necessary in order to overcome the condition.

The first division needs no comment here, except notice of the fact that a meat diet seems to have a very strong and direct influence on initiating and continuing a rise in arterial tension.

For the more persistent cases, where the cause cannot be eradicated or where

organic changes prevent restitution, we must have recourse to drugs, and fortunately we have almost a specific for this condition.

To quinine for malaria, mercury for syphilis, iron for anemia, and adrenalin for vasomotor paralysis, we must add the nitrites for hypertension.

Drug treatment, however, should not be resorted to, except when more natural means fail, or where immediate relief is necessary (here prompt venesection is invaluable), and should be discontinued as soon as possible. In certain acute affections associated with hypertension, such as some forms of vertigo, angina pectoris, acute cardiac dilatation, tic douloureux and asthma, amyl nitrite may be inhaled quickly, preparatory to more permanent relief. The action of this drug is very transitory and ceases almost immediately with the termination of inhalation. Furthermore, the amount can be very indefinitely regulated, and the effect is proportionately uncertain. In some cases of hypertension the author could discover little or no lowering of the blood-pressure. In others he has observed a drop of 30 to 40 mm. Hg, lasting about one to three minutes.

Nitroglycerin is likewise rather uncertain in its action, and though more constant and persistent than amyl nitrite, does not seem to deserve the prominent place it occupies in the therapeutics of various forms of hypertension. The author has obtained a drop in blood-pressure of 100 mm. Hg in less than ten minutes following 1/50 grain of nitroglycerin, but there was a return to the former level of 200 mm. Hg in about an hour. In another case, after the same dose, the rhythm and tension became very irregular, and, while the rate rose to 110 from 60, there was no definite or constant lowering of tension. There was some twitching of fingers noticed during the effect of the drug. This case and several similar ones incline the author to the belief that nitroglycerin must be subject to some chemical changes which may alter and impair its properties. In some cases the transitory depression only lasted 15 or 20 minutes after a hypodermic of grain 1/100 to 1/50 nitroglycerin, and never much over an hour. The pulse is usually increased in frequency, and sometimes alarmingly so. In several cases taking a 1/100 grain

triturate every three or four hours week in and week out the author could find no definite effect from a single dose, nor from the aggregate dose. There seemed no instance in which the patient would not have been benefited by substituting sodium nitrite for nitroglycerin.

Sodium nitrite may lower the blood pressure for from two to three hours, occasionally as long as four. This is unaccompanied by more than a very slight increase in pulse rate. There may be a feeling of flushing and throbbing, as with vasodilators. The reaction from one or two grains averages a fall of from 25 to 50 mm. Hg, coming on rapidly in from 5 to 10 minutes on an empty stomach, and more slowly when taken after eating. Where a uniform permanent effect is desired after meals seems the best time for administration, as the effect is not so abrupt and is more lasting.

The author has obtained a fall in blood pressure from aconite, but his observations with this drug are so limited that he cannot confirm Dr. Thompson's favorable report of its use as a vasodilator in nephritis.

EARLY DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.

In the course of a long article on this subject in the *New York State Journal of Medicine* for February, 1905, WALSH emphasizes the fact that every detail of diet should be dictated to a tuberculous patient. He should have three eggs or a couple of good-sized chops in the morning, with some baked potato and some cereal food, but not that abomination of desolation, fried potatoes, and above all, not cold fried potatoes. Between 10 and 11 o'clock he should have a cup of milk—a full half-pint, at least—with an egg beaten up in it and a small amount of whiskey when he is beginning the new régime, in order to overcome a certain qualmishness. If he is liable to diarrhea, brandy should replace the whiskey. The use of alcohol should be discontinued as soon as he begins to gain in weight. At lunch, between 1 and 2, he should have a good piece of steak and a roll and some one of the cereal puddings, not pie nor any pastry. As a rule, there must be no frittering away of his precious digestive power—the only thing that stands be-

tween him and the grave are articles of food that are easy of digestion. About 4 in the afternoon he should have milk with an egg, or at the beginning of the treatment a weak milk punch. In the evening he should have a full dinner. Before going to bed there should be another cup of milk, this time without any alcohol unless he is restless, and this helps him to sleep. Nutmeg often takes away the taste of the milk and is a slightly stimulant sedative—something that we do not always remember.

If there is fever in the afternoon, then the principal meal should be taken at mid-day. During the evening febrile course the appetite is lessened. Where there is fever the amount of whiskey allowed may be increased. Alcohol is not a febrifuge, but it replaces better than any other food the tissue waste of febrile metabolism, and it is, as we all know, a food and not an intoxicant for fever patients. If a patient can take this amount of food he will gain in weight, and as soon as he has gained ten pounds the danger from tuberculosis is over for the present.

After the diet comes fresh air. There is entirely too much prejudice with regard to cold air as a producer of colds. Nansen at the north pole for a year and a half never had a cold, nor did any of his men. He had been but a week in civilization before himself and three of his men were down with grippy colds. Until three hundred years ago all the civilized world lived with windows wide open winter and summer. At the present moment the sanitariums that are successful in the treatment of tuberculosis keep the temperature of their rooms well down below fifty. At Nordrach the windows are left wide open all day. At Saranac cases of tuberculosis improve during the winter time, living in a tent, temperature often below zero. Tuberculous patients will not take cold if exposed to the outer air in their rooms. They should be warmly clad, but there is no fear of their taking cold, and especially not if they have a fever. Where baths cannot be obtained in typhoid fever the temperature is often reduced by conservative clinicians by keeping the windows open in cold weather for some time, the patient being lightly covered in the meantime. The rooms in which tuberculous patients sleep must be left open all day, and at least one window

should be left open at night even in the coldest weather.

With regard to exercise tuberculous patients need very little. They must never exercise when their temperature is above $99\frac{1}{2}^{\circ}$. When out in the air and the sunlight, which they must have for many hours every day, they should move very gently, if at all, though they may ride. There must be no bicycling.

With regard to the treatment of cough—this is the symptom to which all the supposed specific remedies for tuberculosis have been directed. Creosote, for instance, has all of its vogue, not because of its antiseptic qualities, but because it is a good expectorant. Creosote is undoubtedly the best drug to loosen a hard cough, and it can be borne in small quantities better and longer than any other drug ordinarily used for this purpose. After careful observation some of the best clinicians in Europe deny it all specific virtue. It is practically a mistake ever to give it in doses of more than fifteen minims a day, distributed as you will. It is better to keep the dose under ten minims a day. It should not be given at all if it disturbs the appetite or seems to interfere with digestion.

The cough of tuberculous patients must not be treated in general. Each individual presents special features of this symptom. Some cough most in the early part of the night, just after going to bed. This disturbs their rest for some time. For such patients there are a number of practical suggestions. First, they must sleep in a woolen nightdress. The skin reflex awakens cough. Secondly, they must not get into a bed where the sheets are cold, and especially not between damp sheets. If they cannot stand sleeping between thin woolen blankets the sheets should be warmed carefully before the fire. Tuberculous patients often have cold hands and feet. These must be thoroughly warmed before going to bed. If these precautions do not ameliorate the cough, then the use of a steam atomizer, in which some turpentine, or some oil of cloves, or some formalin, is added to the water, should be used. For poor patients a cup of hot water with a pinch of salt and a pinch of bicarbonate of soda, on the surface of which ten drops of turpentine is placed, and the steam breathed in for five minutes through a paper cone, will often serve to

relieve the cough at the beginning of the night. If, notwithstanding these precautions, the cough continues, one of the opiates should be employed, preferably codeine or heroin. This last drug in twelfth-of-a-grain doses produces very little disturbance of the stomach or bowels and often prevents racking cough. To use any of the opiates for the limitation of the cough during the day is usually a serious error. Secretion is retained that nature meant to throw off. Only when there is danger of hemorrhage, or when patients are very much racked by the cough, or when they are losing many meals because of the cough producing vomit, should opiates be employed during the day.

Many tuberculous patients could control their cough much better than they do if they made an effort. At one of the large German sanitariums over three hundred tuberculous patients eat together in a common refectory. One would expect a chorus of coughing all during the meal. But the rule is there must be no coughing at meal time. Patients insist that they cannot control their cough. For the first week they are humored somewhat. Then if they have not already come to taking meals in common of themselves they are told that the rule of the institution is to take meals with the others. They learn to control their cough, and not a single cough is heard during meal times.

For cough in the morning the use of steam inhalations, always alkaline, and medicated if desired, forms the very best method of preventing the spasms of cough which so often bother consumptives' early morning hours. As the result of having swallowed sputum during the night many consumptive stomachs are in a very undesirable state for the reception of food. If food is taken they often throw it off. Such patients should be advised to take, half an hour before their meal, a small cup—a demi-tasse, not a large cup—of water, as hot as they can stand, in which is dissolved a pinch of salt, just enough to make the water taste like bouillon, and a pinch of bicarbonate of soda. At first this will be thrown off after ten or fifteen minutes, but will bring with it an amount of offensive mucus. After a week or so usually the vomiting will not occur, but the material is carried on to the intestines. This may seem undesirable because

of the presence of bacilli, but there is very little danger. The bacilli are embedded in the indigestible mucus, and besides this bacilli that are free are themselves digested in a healthy intestine. It is surprising how much difference it makes in the appetite for the morning meal to have patients take this small cup of alkaline salt water.

THE TREATMENT OF HEMORRHOIDS BY
THE GENERAL PRACTITIONER.

Under this title, in the *Boston Medical and Surgical Journal* of February 2, 1905, HILL tells us that of the different diseases of the rectum, in private as well as in hospital practice, hemorrhoids are most frequently met with. They may be briefly classified as external and internal. Of the external hemorrhoids but two forms are common, namely, the thrombotic and the external connective tissue hemorrhoid. A thrombotic hemorrhoid is an extravasation of blood at the anal margin beneath the skin covering the external sphincter, extending slightly into the anal canal. This condition is very painful for two or three days, that is, until the clot has been absorbed to the extent of relieving the pressure upon the sensitive nerves at the anal orifice. The thrombotic hemorrhoid is sometimes mistaken for strangulated internal ones, and much unnecessary pain has been caused by attempts at their reduction. They are caused by straining at stool, lifting, or by a paroxysm of coughing, when suddenly a painful swelling, cystic in character, of an oval or circular shape, appears at the anal margin. The size may vary from that of a pea to a small English walnut. They are usually single, or there may be two or three.

In a case very recently under the writer's observation three different extravasations took place within three weeks, which were at last accounted for by the fact that the patient had misinterpreted the instructions that had been given him by his physician to cure his constipation. He had been told to go to stool every morning in order to establish regular habits. While at stool he would strain violently, and in this manner caused three different thrombotic hemorrhoids. When there is a history of hemorrhoids develop-

ing suddenly, and accompanied by pain, in a patient previously free from this affection, this condition may be expected.

Their treatment is simple, effective, and at once relieves the patient of all pain. With a hypodermic syringe to which is attached a fine, sharp-pointed needle, inject a one-per-cent solution of eucaïne in the following manner: With the left index finger and thumb grasping the perianal skin near the swelling, pinch for a moment to numb the part, and then insert the needle very superficially just under the skin, slowly injecting the whole of the top of the tumor well over into the anal canal. It is best not to inject within the swelling, but simply in the line of the proposed incision. Then with a curved bistoury transfix the base of the swelling and cut outward. The clot usually expels itself, but if necessary curette lightly and pack firmly with a strip of iodoform gauze, which should remain *in situ* for twenty-four hours that another clot may not form. This simple, painless operation is at all times successful, and will be much more grateful to the patient than lotions, ointments, or other palliative measures.

That form of external hemorrhoids known as "connective tissue hemorrhoids," "fleshy piles," "skin tabs," etc., is simply redundant folds of perianal and anal skin, caused by the stretching in this region during the passage of large, hard fecal masses. The overstretching causes the normal folds to be slightly torn, at which point a mild infection takes place, on the subsidence of which the folds do not contract to their former size. When inflamed they become excessively painful and render walking and sitting difficult. The external sphincter is sometimes much hypertrophied and thickened. When acutely inflamed and the external sphincter is not hypertrophied, a palliative course should be advised. The constipation from its etiological importance should receive attention with appropriate laxatives. The following treatment as recommended by Goodsell and Miles of London has been found very satisfactory. After bathing the parts with warm water and drying, carefully wipe the anal region with cotton-wool which has been wet with olive oil. This removes all adherent secretions, as well as ointments which may have been used pre-

viously. After this has been done, apply the following ointment:

℞ Zinci oxid., 3ii;
Liniment. camph., 3ss;
Vaselini, 3i.

Fiat ung. Sig.: To be used at night, and dust during the day with a powder composed of

℞ Zinci oxid., 3ss;
Pulv. camph., 3ii;
Pulv. amyli, 5x.

Fiat pulv.

After the acute symptoms have subsided, the following simple procedure will prevent further trouble: After injecting with eucaine one per cent, using aseptic precautions, these hemorrhoids may be removed with a pair of curved scissors and the resulting wound allowed to heal by granulation, or if the base of the hemorrhoid was broad, the wound may be united with catgut sutures. When the folds are numerous only two or three should be removed at one time, lest anal contraction take place. Later, should it seem necessary, any remaining may be similarly dealt with. As previously mentioned, the external sphincter is sometimes thickened and hypertrophied, and an anal fissure or painful ulcer may complicate external hemorrhoids. Therefore we must not jump to the conclusion that inflamed external hemorrhoids are the whole trouble when called to a case.

THE TOXEMIA OF PREGNANCY.

DAVIS tells us in the *American Journal of the Medical Sciences* for February, 1905, that in the treatment of this condition the details of hygiene must be thoroughly carried out. The diet should be regulated, and indigestible and highly nitrogenous food reduced to a minimum or entirely omitted, and fresh, sound milk substituted. The free use of fruits and green vegetables in season is also indicated. Water taken between meals, before retiring, and upon rising, is a common prescription, often difficult of execution. The avoidance of alcohol and of large quantities of alkaloid stimuli is of great importance. Fresh air, regular bathing, sufficient sleep, proper clothing, and reasonable exercise are most important. So common are these precautions that they are frequently neglected.

So far as drugs are concerned, laxatives are indicated. In the presence of acute

toxemia it must be remembered that salines often cause the dissolution of dried feces and the prompt absorption of fecal matter. To increase the solid excretion of the body, calomel is of decided value. To act as a powerful diuretic and to stimulate some of the necessary processes of nutrition, thyroid extract has proven efficient. No greater mistake can be made than to treat the neuralgia or sleeplessness of toxemia by the administration of sedatives or narcotics. This is but adding fuel to the flames. What is needed in these cases is oxygen, purgatives, stimulation of the skin, a selected diet, and abundant rest.

In the presence of persistent and increasing toxemia which does not yield to treatment, the question of the induction of labor naturally arises. It must be kept in mind that the artificial termination of pregnancy often brings with it shock to the mother and in many cases increases her toxemia. If she be suitably cared for nature will usually adjust the question of pregnancy by allowing gestation to continue, or by bringing about changes in the placenta which will result in the death of the child. This course is safe for the mother, although less prompt than the induction of labor.

Of value in preventing serious toxemia is the use of saline waters, and of these Vichy is of especial advantage. In the presence of threatening toxemia the free use of normal salt solution by hypodermoclysis or by rectal injection is especially indicated. The use of the hot pack or bath requires caution, for the temporary increase in pulse tension following the beginning of the bath or pack may induce eclampsia; hence the physician must be prepared to administer veratrum viride hypodermically should the pack increase the tension of the pulse.

We cannot remember too clearly the fact that in the toxemia of pregnancy the vital organs of the patient are undergoing extensive degenerative changes. Cloudy swelling and fatty degeneration of the heart muscle, minute hemorrhages into the substances of the liver, spleen, and lungs, serous effusions or inflammations, seriously threaten the patient's life. The toxemic woman is not safe with the termination of pregnancy, for she may pass through eclampsia only to perish from pneumonia, cardiac syncope, pernicious

jaundice, or general debility. Eclampsia is but a step in the march of the toxemic process, marking its acutest attack, but not guaranteeing the patient against further disease.

REPORT OF A CASE OF ACUTE SEPTIC
INFLAMMATION OF THE THROAT
AND NECK, IN WHICH THE
EDEMATOUS SWELLINGS WERE
DISPERSED BY THE USE OF
ADRENALIN CHLORIDE.

In the *Brooklyn Medical Journal* for February, 1905, FRENCH reports excellent results from the use of adrenalin.

The most instructive feature in this case—to call attention to which is the especial reason for presenting his report—was the magical dispersion of the edema of the fauces and larynx by the application of a solution of adrenalin chloride. This was not an exceptional case illustrative of the swift and effective control of acute edema of the upper air-passages by adrenalin chloride, for in at least a half dozen cases of edema in which the author has applied this organic remedy it has effected a similarly happy issue.

There seems to be almost no literature on the effect of suprarenal capsule, or its derivatives, upon edematous swellings. Indeed, with the exception of Grayson, who in his text-book calls attention to its contractile action on edema, the author is not aware that any writer has mentioned it. He does not, therefore, know of another case in which this remedy has been the sole dependence when the swellings had reached an obstructive degree. This experience would seem to prove that adrenalin chloride has the power of controlling extensive edemas quite as readily as those of limited areas.

While the vasoconstricting action of the drug upon serous infiltration of the sub-mucous cellular tissues is very remarkable, it would, in view of our limited experience with it, be extremely unwise to go armed alone with a cotton carrier to combat an edematous laryngitis. Not until we have had a more extended trial of adrenalin chloride in these cases will it be possible to determine its reliability in all degrees and forms of edema of the larynx. Judging, however, from the experience the author has already had with it, he is strongly inclined to the belief that it is

capable of controlling edema of any mucous surface which can be readily reached with a cotton applicator, or spray from an atomizer. In those rare cases in which the swelling extends below the glottis it is doubtful if the solution could be applied successfully, except by intratracheal injection, and for the relief of which a low tracheotomy would probably have to be performed.

As no technical skill is needed to make the necessary applications, it seems to the writer to be at least probable that the treatment of these cases will, to a large extent, be transferred from the hands of the surgeon to those of the physician, for the results obtained thus far clearly show that adrenalin chloride may be used with a high degree of confidence in its controlling power upon all degrees of edema of the upper air-passages.

ACNE AND ITS TREATMENT.

In the *Medical Record* of March 18, 1905, JACKSON states that the first indication, namely, to improve the condition of the skin, is met along the lines of general medicine. In taking charge of a patient with acne we should forget for the moment that there is any disease of the skin, and study him as a patient who is not in perfect health. Constipation, anemia, plethora, dyspepsia, lithemia, menstrual disorders, whichever or whatever we find, must be relieved if we expect to effect a permanent cure of the disease. Diet, exercise, baths, attention to hygiene, and lastly drugs, are our means for combating the disorders we meet. There is no specific for acne. In most of the so-called "complexion cures" arsenic is the drug used. At times it may prove useful, but only in the very sluggish cases. In most cases it will do more harm than good.

The acne patient should keep good hours, take cold plunge baths if well borne, be out of doors as much as possible engaged in some active and agreeable exercise, and live on a plain, nutritious diet, without sweets or pastries, or foods fried in fat. The young man should forswear tobacco, and the young woman tight lacing.

The second indication, namely, to empty the follicles of the colonies of ba-

cilli, is best met by the use of mechanical means. Three instruments are of service—the curette, the acne lancet, and the comedo expressor. If the number of acne lesions is great and the patient will permit, the most rapid way of meeting the indication is to put the skin on the stretch and go over it roughshod with the curette, tearing off the tops of the pustules and the comedones. After the curetting the face is to be bathed with a solution of boric acid, or bichloride of mercury, or peroxide of hydrogen, or the like. The curettage must be repeated two or three times a week, tearing away the crusts from the previous operation, and the tops of new lesions. No treatment is necessary between the operations, excepting keeping the skin aseptic, as will be spoken of later. The curette should be a large, ring-shaped one, with dull edge. Reversed and pressed on the comedones, it forms an excellent comedo expressor. Before curettage all deep lesions should be opened, as described later. Many patients object to this very vigorous method of treatment. For such, and for those who have only a few lesions, we should resort to the acne lancet and the comedo expressor. The acne lancet is an instrument triangular in shape, with two cutting edges and a shoulder above. Such an instrument can be rapidly plunged into the pustules, as the shoulder prevents its going too far in, so as to do damage. It should always be used, and not an ordinary lancet, as it makes a clean incision that leaves no scar. Some skins have been very badly damaged by the use of an ordinary lancet.

Comedo expressors are made of various shapes. The one preferred by the author resembles a cheese scoop, and has a rounded shoulder, so that it will not wound the skin. It is pressed steadily on one side of the comedo, which will come out into the bowl. Before using it the skin should be softened by the application of warm water, with or without boric acid. Or the ring curette, reversed, as spoken of above, may be used.

After all the comedones are expressed the acne lancet is used to open all the pustules. The contents of the pustules should be squeezed out after they have been opened. Deep lesions, the so-called indurated acne, which are small cutaneous abscesses, are to be opened and their contents squeezed out. This should be done

even before they are “ripe.” If they are squeezed between the fingers at this time one part of them will turn white, and it is into this point that the lancet is to be thrust. After they are opened a little absorbent cotton should be wound on the sharpened end of a piece of wood, dipped in pure carbolic acid, and inserted into the cavity. This will prevent their refilling, which otherwise they are quite sure to do. After the face is gone over in this way it is to be washed off with some antiseptic solution, as after curettage. On the days between the operating days the skin should be rendered aseptic, as is described later.

Another method of meeting this indication is by pinching up the skin and rolling it between the thumb and fingers. Dr. George H. Fox has compared this method to working tacks out of a piece of leather. It is to be advised for patients who cannot be seen often enough for the other operations. The writer has not seen it spread the disease, as some say they have.

The third indication, to keep the skin aseptic, is met by the use of drugs. This form of treatment may be called the chemical method, to distinguish it from the former, or surgical method. The drugs may be exhibited in the form of lotions, ointments, and soaps. As we specially desire to free the skin of fat, which favors the infection, ointments do not seem to be proper vehicles to the writer, and he never uses them. Moreover, they are not so agreeable to use as lotions. The chemicals that are of service in acne are sulphur, resorcin, mercury, and salicylic acid.

During many years of experience in the treatment of acne he has tried many experiments and has learned to place most reliance upon sulphur, and has found that the best way to use it is in the form of the old and tried *lotio alba*, the formula for which is: zinc sulphate and potassium sulphuret, of each $\mathfrak{z}\text{ss}$; rose-water, $\mathfrak{z}\text{iv}$. This is to be shaken up before using. It is rendered still more efficacious by the addition of a drachm or more of precipitated sulphur to the four ounces of the mixture.

Resorcin, twenty per cent, in water or alcohol, is often useful. It is to be dabbed on morning and night until it makes the skin red, dry, and glazed, as if varnished. Then the skin is to be bathed with an oxide of zinc lotion, or anointed with cold

cream until the reaction subsides, after which the resorcin is to be used again.

A favorite preparation of the writer's that meets the indications is: Salicylic acid, gr. xl; calamine, gr. xx; zinc oxide, 3ss; glycerin, 3ii; lime-water, 3vi; rose-water, q. s. ad 3iv. This, being about the color of the skin, can be kept constantly applied. Unless made by an expert chemist it is prone to become unusable in a few days, an insoluble salicylate of zinc being formed. Kreuznach soap No. 2, made from the waters of the Kreuznach Springs, is also very useful.

TREATMENT OF LATERAL CURVATURE.

BRADFORD (*Boston Medical and Surgical Journal*, November 3, 1904) states that the basis of the treatment for non-inflammatory spinal curves of children is dependent upon making the spinal column more flexible and straightened in those parts which have become curved and stiff. If the distortion has developed or is developing, it must be overcome by adequate pressure applied as constantly as is practicable, and the patients during the years of susceptibility should be shielded from such influences as will interfere with treatment or favor a relapse.

The corrective measures for straightening the spine consist, first, in a constantly applied stretching force, and secondly, in the intermittent application of such force. The latter is to be used with greater strength than the former, and may be employed as a daily exercise for a short time; the former may be employed more or less constantly according to the amount of correction which is attempted. Stretching exercises, if applied with skill and precision, are satisfactory in their results in suitable cases. When, however, the shape of the bones has been altered, a strongly corrective force is needful, and should be applied as constantly as practicable. Nothing is as efficient for this purpose as the plaster jacket applied with the patient in the corrected position, or one as nearly corrected as possible for the patient to endure. In young cases a complete correction is possible by this method, providing the jackets are skilfully applied and frequently changed. A fixed plaster jacket should not constitute a method of treatment any longer than is absolutely

necessary. They should be followed as soon as possible by removable corsets and by the use of gymnastics. The removable corsets are applicable when the danger of increasing growth has passed, and when the greatest amount of correction has been obtained.

GALL-STONE REMOVAL: MOBILIZATION OF THE DUODENUM.

PAYR (*Deutsche Zeitschrift für Chirurgie*, October, 1904) presents some views concerning the mobilization of the duodenum in the removal of gall-stones from the retroduodenal portion of the common duct.

This procedure he carries out by means of a curved incision, convexity outward, of the peritoneum, 12 to 15 centimeters long and one centimeter from the duodenal border. The duodenum is then pushed aside until the head of the pancreas appears, when the common duct can be easily palpated throughout its extent. A stone lying therein can be manipulated until it is drawn into the wide supraduodenal portion of the duct, from whence it can be extracted through an incision. The advantages he claims for this method are the elimination of a retro-duodenal opening of the duct and the difficult suturing of the same.

LOCAL OR SPINAL ANESTHESIA; USE OF ADRENALIN AND COCAINE.

THEIR (*Deutsche Zeitschrift für Chirurgie*, September, 1904) reports some observations which tend to prove that the use of adrenalin in combination with cocaine as an injection for local or spinal anesthesia increases rather than decreases the toxicity of the cocaine. He concludes from the evidence of his experiments that the use of adrenalin does not reduce the toxic effect of cocaine, and that an injection of adrenalin in solution preceding by five or six minutes the injection of cocaine postpones the effect of the latter.

He mentions Klapp's experiments, in which it was found that the excretion as well as the absorption of milk sugar was impeded by adrenalin, and in which most of the toxic symptoms appeared during the first hour after injection or while the adrenalin was active. He suggests that

if the same effect holds true for adrenalin with cocaine it may explain the deduction from his own experiments that the combination is more toxic than cocaine alone.

*UNUNITED FRACTURES OF THE NECK
OF THE FEMUR; UNION BY OPEN
OPERATION.*

Notwithstanding the rarity of fracture of the neck of the femur in the young and middle-aged, it appears surprising to FREEMAN (*Annals of Surgery*, October, 1904) how few of the open operations have been performed. He has been able to find but thirteen cases, which, added to the case he reports in his own experience, makes fourteen cases. Out of these, ten only report results.

The results on the whole are encouraging. Good motion and satisfactory function have been obtained, but some of the cases were not followed for a satisfactory period. There always remains, however, some shortening, varying from half an inch to an inch and a half or more. This arises from absorption of bone, from loss by freshening the fragments, and from imperfect adjustment.

Chronic and acute derangements of various organs, particularly the kidneys and lungs, must be given due weight before recommending operation. A moderate limp without pain or undue loss of function would hardly be sufficient ground for operation, especially as some degree of shortening would be almost sure to remain; but if disability and suffering were pronounced, operation would be strongly indicated in favorable cases.

Now that more confidence exists in aseptic technique, preference can be given over the posterior incision to the anterior one. The cut should begin a short distance below and external to the anterior superior spinous process of the ilium, and extend directly downward for three or four inches, the exact distance varying somewhat according to the thickness of the soft parts. It should lie just outside the sartorius muscle, which can be retracted inward, while the fascia lata is drawn outward. The dissection should be blunt as far as possible, especially at its lower extremity. Should the surgeon during the course of the operation conclude to remove the head of the bone instead of reuniting the fragments, he can

do so through this incision quite as readily as through any other.

In freshening the fragments, which are usually abnormally soft, the surfaces are easily chipped away with a chisel, or scraped off with a curette, care being taken to remove as little bone as possible in order to avoid shortening of the neck, and, as a consequence, shortening of the entire limb, which is apt to be considerable in spite of all precautions. Troublesome oozing may be checked by the use of pressure sponges wrung out of very hot water. Detached splinters of bone should be removed.

Upon the degree of fixation of the fragments depends, of course, the ultimate results. Whatever method is adopted, the trochanter should be supported from behind, as it has a marked tendency to drop backward, thus producing displacement of the fragments and outward rotation of the limb. This can be done by a cushion or by an appropriate plaster-of-Paris dressing.

While simple extension procures union in many instances, it is unwise to trust to it alone, even when combined with support of the trochanter by a plaster cast surrounding the pelvis, for there are other procedures supposed to be more certain in their results. The principal one of these is the union of the fragments by means of nails, screws, or bone or ivory pegs. The upper end of the femur often becomes so extremely soft and porous that the instruments of fixation will not hold, and so markedly so in Freeman's case that the screw could be pushed directly through the bone without previous drilling.

Freeman used a bone clamp instead of nails and pegs. The same clamp he has found successful in two cases of ununited fractures of the tibia. It consists of three or four long screws which are inserted in a longitudinal line of holes drilled in the bone, their projecting ends being tightly held by two metal side clamps lined with strips of wood. The efficiency of the apparatus lies in the fact that the screws bury themselves in the wood as firmly as if screwed into it. As regards the hip, it would make no difference at what vertical angle the upper screw projected from the bone, it could be easily adjusted and securely held. Such an apparatus, having its foundation two or three inches down the shaft of the femur, in solid bone,

would certainly be more satisfactory than screws alone.

Unless infection occur, the screws need not be removed for several weeks, until consolidation is well advanced.

Temporary drainage is indicated, depending somewhat upon the amount of oozing. When an anterior incision is employed it is hardly wise to drain posteriorly.

The patient should not be let out of bed before nine or ten weeks.

COCAINE IN EYEBALL OPERATIONS; MODIFICATION OF METHOD.

To make anesthesia for operating upon the iris of the eye absolutely complete, KOLLER (*British Medical Journal*, November 12, 1904) puts a few drops of cocaine into the conjunctival sac. Then at the point where the fixation forceps will be placed, and opposite where the incision is to be made, a few drops of a 5-per-cent solution of cocaine is injected beneath the conjunctiva, but not into the episcleral tissues. After five or six minutes operation can be performed, the iris being quite anesthetic.

A SIMPLE METHOD FOR THE RADICAL CURE OF HYDROCELE.

LAWRENCE (*Yale Medical Journal*, September, 1904) advocates as a safe and nearly painless operation the introduction into the hydrocele sac of an aseptic absorbable solid substance. The ideal substance is sterile catgut. The hydrocele is tapped with a small trocar under local anesthesia, the fluid is thoroughly evacuated, and through the cannula is pushed 9 or 10 inches of a No. 2 or 3 sterile catgut. The cannula is then withdrawn and the opening is sealed with collodion or adhesive plaster. Thereafter for twelve hours the patient is kept quiet. There results a painless reaction.

The author states that a ten years' experience with this method has resulted in a permanent cure for every case, this often after repeated failures from iodine treatment. In four to six weeks the scrotum resumes a normal appearance. For more recent cases, nine inches of No. 2 catgut is used; for old chronic cases with thickened sac walls, twelve inches of No. 3.

Of course in double hydrocele or one of the multilocular variety each sac must be drained and have its separate piece of catgut inserted. Some illustrative cases are reported, the first operated on eight years ago. This man had a hydrocele of five years' standing which had been tapped with the trocar four times; the sac refilled in about six weeks. Twenty ounces of hydrocele fluid was withdrawn, and ten inches of No. 3 catgut was introduced. This man went about his former work the same evening, and although the scrotum swelled to about half the size of the filled sac and gave a firm sensation on palpation, the man experienced no pain and conditions were apparently normal in six weeks.

MAXILLARY FRACTURES; RATIONAL REDUCTION AND FIXATION.

Although it is rather difficult to reduce and fix a broken inferior maxillary bone, much better than the usual results can be obtained, according to LEDERER (*Medical Record*, November 19, 1904), by the employment of the double arch interdental splint and proper bandaging.

Recognition of the true symptoms is of course important. There is altered physiognomy, deformity, false point of motion, pain, crepitus, lack of function and fixedness of jaw, increased salivation, pain in swallowing, and faulty articulation of the teeth. Some patients, however, may present modifications of these features, some being absent probably.

The prognosis is favorable under a treatment consisting in the reduction of the fracture and the coaptation and fixation of the parts, affording the jaw perfect rest till union has taken place. The mouth should be carefully washed, spiculæ of bone and dislodged teeth removed, and the buccal cavity put into as aseptic condition as possible.

The patient is then anesthetized and an impression of both jaws is taken by means of "modeling compound" (a combination of gum damar, French chalk, stearin, and coloring material, much employed by dentists). This is preferable to plaster, as it hardens faster and gives a fairly clear impression. This compound is placed in a metal impression cup, and the cup containing the compound, which has been softened in hot water, is placed on the

jaw and firmly but evenly pressed down, so as to embed the teeth in the compound. The cup is held in position till the compound is chilled, which can be hastened by irrigating the floor of the mouth with cold water. The cup is now removed without jerking and placed in cold water to thoroughly harden the compound. An impression of the opposite jaw is now obtained in the same fashion. The patient is now dismissed, after a bandage has been applied. Models of the jaws are now made by pouring softly mixed plaster into the impressions and permitting the plaster to set. After the plaster has thoroughly hardened, the cups are immersed in hot water again, and the plaster models can easily be separated from the again softened compound impression. Two models have now been obtained—one of the healthy jaw, and one of the fractured bone in its abnormal, misplaced condition.

The solution of continuity of the bone is now reproduced by sawing the model in two along the lines of fracture, with a scroll saw. The fractured model is coapted and then fixated, by means of a little soft plaster, so as to articulate with the model of the opposite jaw.

Thus a model of the fracture is obtained as it should present after union has taken place. According to these models a splint is made in wax, embracing both the upper and lower teeth, high enough so as to separate the jaws about three-quarters of an inch, with an opening in the center to permit the introduction of fluid food.

This wax splint is now reproduced in rubber or tin. The patient is again anesthetized, preferably not with nitrous oxide, as this does not permit complete muscular relaxation. The splint is introduced into the mouth, first embracing the healthy jaw. The fractured maxilla is now forced into the other half of the splint and a double roller bandage applied. The double roller is preferable to any other head bandage, as the patient cannot remove it, a great advantage in children; it positively does not slip, and it can be secured without pins.

The patient is put on fluids and diet needing no mastication. The mouth is kept as clean as possible by antiseptic washes, and the splint can be removed from time to time to cleanse it.

When, as occurred in an instance with

Lederer, it is difficult to have the splint kept in position, a chin cap may be used in conjunction with a skullcap, held together by a strap and buckle on each side. This device permits drawing tighter at will.

PHIMOSIS; BLOODLESS TREATMENT.

The method employed by GEHRUNG (*Interstate Medical Journal*, November, 1904) for the last forty years for bloodless treatment of phimosis is so simple as to make one believe it must have been practiced from time immemorial, for which reason he has not reported it until now, and now only because of a recent foreign description of practically the same method as being new.

While the operation is simple, it will not do for the practitioner to neglect every care and precaution in its performance and after treatment.

Retract the skin on the penis until the redundant part which is in front of the glans disappears and the meatus urethralis and the meatus præputialis are exposed. Then insert a blunt and flat instrument like the eye part of a needle, probe between the foreskin and the glans down to the sulcus, and sweep this around the glans from one side of the frenum to the other side of the same. The foreskin being thus released from these pseudo-adhesions, all that remains to do is to squeeze the glans out of the prepuce, a process somewhat similar to the squeezing a stone out of a cherry. The sulcus must be completely exposed and the smegma thoroughly removed; the entire exposed part well oiled and the foreskin returned to its former place. The retraction and oiling should, on account of the soreness of the parts, not be repeated before forty-eight hours.

The difficulty and pain usually occurring at the first micturition can be overcome by immersing the organ in warm water or by giving the child one or more grains of some one of the bromides immediately after the operation. Avoid exposure to cold, etc. The retraction must then be repeated; at first, every twenty-four to forty-eight hours, then gradually at longer intervals. Whether simply retraction or stretching by forceps, or any other means, be practiced, the prepuce will contract again in a shorter or longer time

if neglected, unless the prepuce be allowed to remain permanently retracted, which can be obtained by leaving the glans exposed for a gradually increasing time until it becomes tolerable of permanent retraction. Should the patient or his attendant neglect the retraction or the permanent exposure, the phimosis with all its consequences may return at any subsequent period of his life. This omission has driven many of the earlier cases in later life to submit to circumcision and others to suffer for the want of it. Circumcision, of course, would give a permanent result at one sweep, without possibility of a return of the trouble.

SUTURE OF WOUND OF THE HEART.

A rather remarkable case of self-inflicted wound of the heart, and of its treatment by suturing, is reported in the *Lancet* of November 5, 1904, by SOMERVILLE.

The patient, while reading in a public reading room, had a sudden desire to take his life. He placed a penknife blade upward upon the reading table and then bore his weight upon it, causing the blade to enter the chest wall between the fifth and sixth ribs for its entire length. The knife was allowed to remain for two and a half minutes. Disappointed, he withdrew the instrument, and reinserted it directly above the first wound. He left the knife in position and watched it move with the cardiac systole. Then he rotated the knife once or twice, but was interrupted by the knife being taken from him.

The doctor arrived about five minutes after the injury. The patient was then in a state of profound collapse. He was extremely pale and very faint and perspiring profusely. Both wounds were bleeding rather freely. His heart's action was feeble, the cardiac sounds being only heard with difficulty. The pulse at the wrist was barely perceptible and very irregular in time and volume. The respirations were 36 to the minute. He said that he had little pain beyond a smarting at the skin incisions. He was given a subcutaneous injection of strychnine and laid down flat. Temporary dressings were applied, and he was removed a short distance to a cottage hospital.

The operation was commenced about

fifty minutes after he was found. He was put under ether, which was preceded by chloride of ethyl to reduce initial struggling and excitement. Two punctured wounds were seen over the precordium—the upper one in the fourth intercostal space and the lower one in a vertical line below it in the fifth intercostal space, both wounds being situated between the left parasternal and mammary lines. The upper wound was enlarged laterally in both directions, making an incision of four inches; a vertical incision was made joining the two self-inflicted wounds and continued for two inches below the lower wound. The two triangular flaps of skin and muscle thus made were reflected, the upper limit of the exposed area retracted upwards, and two wounds were found, one in the fourth interspace and the other in the fifth interspace, these corresponding to the wounds in the skin. The man being tall and having a long thorax the intercostal spaces were larger than usual, and it was not found necessary to resect the ribs. The wound in the fourth interspace was enlarged and the pericardium exposed; this also was found to be wounded, and the wound was enlarged. The pericardial sac was full of blood, and on removing this a wound was found in the left ventricle of the heart, three-eighths of an inch in length, with its long axis in the long axis of the ventricle. The visceral layer of pericardium had retracted, making the wound spindle-shaped, and the aperture was plugged with some lacerated myocardium, this laceration having probably been produced when the knife was rotated. Blood was oozing from the wound, but the heart's action was so rapid and irregular that it was difficult to say at what period of the cardiac cycle the hemorrhage was greatest. The lacerated cardiac muscle, which was protruding, was removed by scissors. The hemorrhage then became more profuse, but was arrested by the introduction of the tip of the little finger into the wound. This had also the effect of steadying the heart for the introduction of sutures, these being passed during diastole. The needle used was a curved intestinal one, and was passed deep into the myocardium just short of the endocardial lining of the ventricle. Three interrupted silk sutures were found necessary. During the suturing the action of the heart became more irregular and em-

barrassed than before, and the patient's condition gave rise to considerable anxiety, but after the finger had been removed and the sutures tied, and a hypodermic injection of strychnine given, the heart's action considerably improved. The pericardial sac was cleansed, a gauze drain was introduced, and the wound in the pericardium and intercostal muscles was closed. The lower wound in the fifth interspace was then enlarged; here it was found that both the pleura and pericardium had been opened, producing pneumo-hemothorax and pneumo-hemopericardium, but the heart here had escaped injury. The wounds of the pericardium and pleura were cleansed, a gauze drain was introduced, and sutures were inserted. The cutaneous incisions were closed and dressings were applied.

Four hours after the operation the pulse was 80 and fairly good. The subsequent history of the wound was uneventful, healing being by first intention.

INCONTINENCE OF URINE IN CHILDREN: TREATMENT.

There is a strong tendency to class cases of incontinence of urine in children into two groups, somewhat unscientifically—those which recover more or less rapidly under large doses of belladonna or atropine along with ordinary common-sense regulation of the diet and habits and the removal of obvious sources of irritation; and those which persist or get worse in spite of all such measures. Fresh suggestions for dealing with these are collected by THOMSON, in the *Scottish Medical and Surgical Journal*, October, 1904.

Rey, who has treated 52 cases of enuresis in children during the last five years, is convinced that when there is no central nervous lesion or mental defect, and no infantilism, the wetting is always primarily due to the presence of local disease or irritation of the bladder or of neighboring parts. If the local cause has disappeared but the enuresis continues, faradism, epidural injections, etc., may bring about a sudden cure apparently.

One of the commonest and most important causes is latent cystitis due to bacillus coli. It is especially common in girls, and is often responsible for their becoming pale, miserable, and irritable, although free from any noticeable symp-

tom. The treatment consists in the persevering application of antiseptics to the whole of the urinary tract. The internal administration of salol, along with strict milk diet and regular meals, does better than washing out the bladder.

A form of cystitis often met with in badly-nourished, injudiciously fed, and rickety children is simple mucous cystitis. When the symptoms are acute the patient is often circumcised, owing to the idea that relief is required from phimosis. The distress can be relieved, however, even within 24 hours, by regulation of the diet and the administration of salol. In some cases there is a special irritation of the meatus and its neighborhood, which leads to marked constriction of its lumen. When this is present it greatly favors the continuance of the incontinence.

Phosphaturia, which sometimes gives rise to enuresis, is best treated by a flesh diet and a diminution of vegetable food.

If there is a large increase of uric acid in the urine, the incontinence may be stopped by the adoption of a vegetable diet.

Accumulation of smegma about the corona glandis, owing to the persistence of the natural physiological adhesion between the glans and the prepuce, is another cause. When the separation is made, permanent recovery is common.

In general, a proper ordering of the diet will cure, or at least greatly improve, matters. What is best is usually a diet of four or five meals a day of bread and milk or porridge and milk, and nothing else, especially no fruit or sweets.

Tonics are useful, and Rey recommends a mixture of condurango and hydrochloric acid before meals to improve the appetite and digestion. At the same time he gives fairly large doses of salol after food. These will have caused distinct improvement by the end of the week, and afterward can be given less regularly, perhaps every alternate three or four days. In obstinate cases he adds strychnine. A moderate amount of hardening treatment by the administration of short douches or cold baths is useful. It is very important to see to the child's clothing—that he should wear long stockings, and the bladder region, as well as the legs, must be kept warm. Cold and wet feet are, of course, to be avoided, and damp and

draughts generally are to be guarded against.

Raising the foot of the bed sometimes helps. The patient should also be frequently awakened in the cultivation of the habit of passing water as often as required.

Lewis also believes that much of the trouble of enuresis springs from dietetic errors. In most instances a rigid anti-diabetic diet removes the symptoms in a few days. After a general tonic treatment, the ordinary diet may be returned to after three or four weeks.

Genouville and Campani regard enuresis as due to weakness of contractility of the bladder sphincter, and hold that its rational treatment consists therefore in faradization. They apply it directly by means of a bulbous-ended bougie in the urethra in the case of older girls, and in the vagina in younger ones. In boys they find that the one pole may be quite satisfactorily placed on the perineum instead of in the urethra. This treatment, they assert, cures 55 per cent of cases, and greatly improves another 25 per cent.

Epidural injections for enuresis have been tried by Kapsammer in the case of forty-five children. Thirty-eight were cured, five improved, and two relapsed. For the little operation it is best to use a metal syringe and a needle about four centimeters long. Ten to forty cubic centimeters of saline solution is injected at a time. The patient is laid face downward, over a wedge-shaped pillow, to elevate the sacral region. The strictest antiseptic precautions having been taken, the needle is passed into the lower end of the sacral canal. The point chosen for entering is a little above the middle of a line connecting the ends of the cornua coccygea of the sacrum. These are easily felt unless the child be fat. The needle is inclined at an angle of about 60° to the skin, until it meets with the resistance of the front wall of the sacral canal. Care must be taken not to pass the needle so far in as to puncture the dura. The fluid is injected gently and slowly. The puncture is closed with sterilized gauze and plaster, and the child may be treated as an outpatient.

The injection into the retrorectal connective tissue of large quantities of sterile salt solution is another new method of

treatment for obstinate cases of enuresis. Revel has had three patients treated in this way with complete success. The fluid injected is supposed to exert some sort of mechanical effect on the plexus, on the theory that incontinence arises from a functional disturbance of the sympathetic nervous system at the level of the hypogastric plexus. Using a large syringe, the doctor, standing at the patient's left, passes his left finger into the rectum to guide the needle of the syringe. The needle is inserted to the tip of the coccyx or a little to one side of it and passed carefully up behind the rectum. From 100 to 150 cubic centimeters is introduced. The effect is marked and immediate; and retention may be had for several days.

CATGUT—MODIFICATION OF THE CLAUDIUS METHOD OF PREPARATION.

While the reports of those who have adopted the method of Claudius in the preparation of catgut have, for the most part, been favorable to it, some writers have condemned its use. The point of dissension has been a doubt as to the tensile strength of the catgut prepared by the method, but STONE (*Medical Record*, November 12, 1904) has devised a procedure to overcome this objection.

The method of Claudius, which produces an easily prepared aseptic suture material of fairly good tensile strength, consists in submerging the gut for eight days, after winding on glass spool or wood chip, in iodine, 1.0; potassic iodide, 1.0; distilled water, 100.0. The potassic iodide is first dissolved in a small amount of water, the pulverized iodine crystals then added to it, and the mixture diluted with distilled water.

Claudius recommends washing the gut in a 3-per-cent carbolic solution just before using, which is supposed to increase its strength.

The modification of Stone consists simply in submerging the raw commercial catgut in an aqueous 4-per-cent formalin solution for thirty-six to forty-eight hours, then washing in running water ten to twelve hours to free the excess of formalin, and then to submerge in the iodine solution recommended by Claudius for eight days before using. The gut should

be loosely wound on glass spools and put in the formalin solution. When in the running water, strands ten to twelve inches long are cut from the spool and put into the iodine solution. Providing a certain batch of catgut is old and brittle, the addition of 5 per cent solution boroglyceride (glycerite of boroglycerin U. S. P.) or of glycerin to the iodine solution improves the pliability of the catgut without in any way lessening its tensile strength. The boroglycerin, or glycerin, should be sterilized in a container surrounded by boiling water for one-half hour on three successive days. Scrapings from gut prepared in this way have been found to be absolutely sterile in one-half hour after submersion in the iodine solution.

The material is left in the iodine, or iodine-glycerin solution, until ready for use. It is then removed with sterile forceps, threaded, and placed in sterile water. It seems to be preserved indefinitely in the solution without suffering deterioration. The formalin treatment is not intended to render the gut sterile, although it undoubtedly aids in the process, but merely to harden it. The addition of the boroglyceride, or glycerin, when necessary, to the iodine solution, is intended to render the gut more pliable after the hardening process.

Catgut so prepared has all the requirements of a perfect suture and ligature material. It practically has the tensile strength of silk. It is pliable, and not too elastic, knots well, and seems to be ideal in every respect.

SUBPERIOSTEAL FRACTURES OF THE HUMERUS IN CHILDREN.

As illustrating the dangers of overlooking such fractures in children, STONE (quoted in *Montreal Medical Journal*, October, 1904) reports five cases of fracture of the surgical neck of the humerus.

In making a diagnosis, a subperiosteal fracture is to be distinguished from a greenstick by an angular deformity in the latter, but with no lateral displacement. In the former the fracture is transverse and accompanied by a lateral displacement.

The term subperiosteal is applied to these cases because the slight impaction is considered to be insufficient to hold the

fragments in relation to each other. When there is absence of shortening or marked deformity, or crepitus, and abnormal mobility, these must be explained in part by impaction, but chiefly by the toughness and strength of the periosteum.

When children, after a fall on the arm or shoulder, are unable to abduct the arm, but present none of the other signs of fracture or dislocation, and are able to move the arm in other directions, most careful examination should be made to determine localized tenderness anteriorly just below the head of the humerus and also a slight irregularity in the contour of the bone at that point. These signs are sufficient to establish a diagnosis of fracture of the surgical neck, and should deter the examiner from further attempts to secure crepitus or mobility.

STRYCHNINE IN SHOCK AND COLLAPSE —SUMMARY OF EXPERIMENTAL RESEARCH.

There is reported by CRILE, in the *New York and Philadelphia Medical Journal*, September 24, 1904, a summary of an experimental research into strychnine in shock and collapse. There are published along with the summary illustrative protocols.

In the majority of instances, in the normal animal, when sufficient amount of strychnine was given to cause an increased excitability of the spinal cord, as indicated by heightened reflexes and an increased muscular tone, a rise in blood-pressure was noted. In smaller doses, occasionally, a slight immediate fall, a slight immediate rise, or later irregularities were noted; but on making 48 careful measurements it was found that no noteworthy change occurred.

The stage of increased excitability before mentioned represented the borderland between the dosage without effect and that of maximum effect. When more was given after this stage had been reached, convulsions appeared and the blood-pressure rose abruptly and high, sometimes even more than doubling the normal. The curve during the convulsions was exceedingly irregular and continued for some time above the normal, exhibiting a secondary rise if later convulsions occurred. The simultaneous appearance of the rise in the blood-

pressure and increased tendon reflexes occurred in those cases in which very small doses were given at repeated intervals, and the cases in which this effect was obtained in a single dose. The stupendous rise and the convulsions also occurred simultaneously.

In a series of experiments in which convulsions were prevented by physiological doses of curare, and in which convulsive doses of strychnine were given, the blood-pressure rose as high as in the experiments in which convulsions did occur.

In another series, both vagi and accelerantes were severed, curare given, and varying doses of strychnine administered. The general effect upon the blood-pressure did not differ materially from the effects of corresponding doses upon the normal animal.

In the curarized animal and in the animal having both vagi and both accelerantes severed, the rise following the physiological dose of strychnine continued from half an hour to one hour and a half. Repetition of the dose caused a second rise, in some instances as high as the first, though usually not so high, and it did not continue more than half as long. On administering the third dose, the blood-pressure generally rose, though not so high, and continued for a shorter period, usually but a few minutes. On repeating more doses a period was soon reached in which no further effect was noted. After each dose, when the effect had worn off, the blood-pressure fell to a lower level than it was at before the injection was given, until finally it reached the level, usually between 20 and 30 millimeters, which was not altered by any additional dosage. If during the time of maximum rise following a physiological dose, an equal or greater dose was given, a temporary rise of from 5 to 10 millimeters, continuing but a few seconds, was noted. Burning the paw and electrically stimulating the sciatic nerve, so long as the repeated doses of strychnine caused a rise in blood-pressure, were followed by a rise of about the same height as, though of less duration than, that in the normal animal.

When strychnine no longer produced a rise no effect was noted on burning the paw or electrically stimulating the sciatic nerve. The length of the pulse wave was

markedly increased during the rise of the blood-pressure. In some instances it was increased fivefold. As the blood-pressure declined the length of the pulse wave diminished and finally disappeared.

During the maximum stimulation the blood-pressure curve was usually even, but as the strychnine effect wore off the curve became irregular; between the end of the maximum curve and the beginning of the final breakdown the curve was quite irregular. After the inauguration of the final breakdown the curve became more irregular. When this stage was reached it was usually not possible to distinguish between the terminal curve in the strychnine experiments and the terminal curve of the shock experiments. Small doses of strychnine, on the whole, seemed to improve respiration. Larger doses were frequently followed by respiratory failure. After the blood-pressure had reached the stage of terminal helplessness the administration of saline solution caused a rise, which continued for some time during the flow. On cessation of the saline infusion the blood-pressure fell to the previous level, and if the infusion continued beyond a certain limited period of time the blood-pressure fell to or near its former level during the infusion. The administration of adrenalin, after the final strychnine injection had occurred, was followed by a rise in proportion to the amount given—in one instance as high as 260 mm. Bandaging and other means of external pressure produced a rise of blood-pressure. Digitalis administered in the terminal breakdown in the strychnine experiments in most instances produced no rise in the blood-pressure.

In the animals in which both vagi and both accelerantes had been severed no change in pulse rate was noted in any dose that was given. In animals in which varying degrees of shock were produced strychnine caused a rise of blood-pressure proportional to the degree of the shock. In the cases in which a slight shock existed the rise and its continuation were correspondingly less. On repeating the injections, if the shock was deep, frequently no rise occurred. If the shock was moderate some rise might occur. In the cases in which the shock was nearly to the fatal degree only a slight rise occurred, and lasted but a few minutes, after

which no amount of strychnine produced a rise. In any degree of shock less than fatal after the administration of a therapeutic dose of strychnine the animal passed into a deeper degree of shock.

It was noted in a number of experiments that electrical stimulation of the sciatic nerve or burning of the paw caused a rise in the blood-pressure to such a degree as is usually noted in the corresponding amount of shock. After a physiological dose of strychnine, no rise occurred on repeating such stimulation.

In the experiments in which the animals were bled until the blood-pressure had fallen to the level of the final breakdown from excessive doses of strychnine the administration of the therapeutic doses caused a marked rise in the blood-pressure. In the experiments in which the medulla was cocainized, therapeutic doses of strychnine were given, causing convulsions, but a momentary slight rise in the blood-pressure occurred. This rise was noted only during the convulsions.

In another series in which both the medulla and the *spinal cord* were cocainized, and an excessive dose of strychnine was given, convulsions did not occur and no rise in blood-pressure was noted.

Adrenalin in the foregoing series cause a rise in the blood-pressure proportional to the dose—a rise as high as 260 mm. Hg.

OPERATIVE TREATMENT OF MEDICAL DISEASES OF THE KIDNEY.

A. YVERT (*Rev. de Chir.*, vol. xxx, p. 309) considers the various conditions for which operation has been proposed for medical diseases of the kidney, taking up in turn pyelonephritis, calculous pyelitis, acute nephritis, chronic nephritis, puerperal eclampsia, renal hematuria, and renal neuralgia. He believes that operation should be performed if life is threatened by anuria, and after the failure of medical means. In all cases dorsal nephrotomy, proposed by Pousson, is the operation of choice, as it possesses the following advantages over decapsulation: (1) It is more quickly and easily performed. (2) It is a less serious operation *per se*. (3) Its effects are immediate, being due to reduction of congestion and freeing of the excretory duct; those of

decapsulation being due to improvement in circulation by forming of new blood-vessels do not appear for several days. (4) The statistics are quite as good in all cases.

DIAGNOSTIC VALUE OF RECTAL EXAMINATION OF CHILDREN.

The importance of a rectal examination of children in the diagnosis of the abdominal conditions of infancy and childhood is not, MUMMERY (*British Journal of Children's Diseases*, October, 1904) believes, sufficiently recognized as yet. Carpenter recommends it as a routine practice.

The examination, as a rule, is best made with the child lying upon its back on a couch with the thighs well flexed upon the abdomen. The first finger of the right hand is then used for the rectal examination, and the left hand is kept upon the child's abdomen. In this way the front and right sides of the abdomen can be examined. To examine the left side the child can be simply rolled over on to the right side. In this way the examiner is enabled to explore the left side of the pelvis and abdominal cavity without taking the finger out of the rectum. If it be preferred, the left forefinger may be used for examining the left side, and the patient kept in the dorsal position.

In some cases additional information may be obtained by having the child held up in a crouching attitude, so as to allow the force of gravity to bring into contact with the finger any tumor or diseased organ previously out of reach.

If any inflammatory condition is present it is better to administer an anesthetic.

It should always be a rule to examine the rectum when a child is suffering from diarrhea and tenesmus which does not readily react to treatment. Cases of chronic constipation in children may also be the result of obstruction of the bowel caused by tumors, such as sarcomata or the congenital sacral tumors, the presence of which can be detected only by such an examination. The examination is a valuable aid in the diagnosis of tuberculous peritonitis. The characteristic matting together of the intestines, the thickened, edematous condition of the walls of the intestine, the presence of enlarged mesenteric glands and of localized collections of

pus, may be detected in this way, and form not only a valuable aid in the recognition of this condition, but in gauging the progress and severity of the disease.

Perhaps the greatest value of such examinations is in connection with diseases of the female pelvic organs of infants and young children. It is only recently that the possibility of children of tender years suffering from diseases of the uterine appendages has been recognized. In one child, aged 22 months, an ovarian cyst was diagnosed through a rectal examination, and successfully removed. Two cases of pyosalpinx discovered by rectal examination are on record, and both cases were brought to health. The rare complaint of tuberculous disease of the uterine appendages of children has also been diagnosed by rectal examination.

CHRONIC GONORRHEAL RHEUMATISM.

LAQUEUR (*Berlin. Klin. Woch.*, xli, 942) asserts that Bier's passive hyperemia has shown itself especially useful in the treatment of chronic rheumatism with acute exacerbations, but that in arthritis deformans and where there is long-standing deformity it is inferior to dry heat. The author has found, in contrast to Bier, just as good effects in the lower extremity as in the upper, some of his most striking results being in obstinate disease of the joints of the feet. The first effect is relief of pain, which is soon followed by improved function, due not only to the treatment but to the resorbent action of the hyperemia. In gonorrheal rheumatism the author has had little experience, but on the whole the results are favorable.

The technique is easy and the apparatus cheap, consisting only of a rubber band which is wound around the limb above the joint to be treated, tightly enough to make the limb deep red or cyanotic and to make its temperature higher than that of its fellow. If the knee or elbow is being treated, a bandage should be applied to the distal part of the limb, to concentrate the effect on the joint. The band should be left on from two to four hours at first, increasing to twelve hours. In clinic patients the bandage has been left on twenty-two hours, and after two hours' rest reapplied, yet in spite of this ener-

getic use no bad effects have ever been observed. If there is much pain the bandage should not be left on more than four to five hours. While the band is in place it is not necessary to keep the limb at rest; the patient may walk while the foot or write while the hand is being treated.

TUBERCULOUS STENOSIS OF THE SMALL INTESTINE IN CHILDREN.

BERARD and LERICHE (*Rev. de Chirurg.*, vol. xxx, p. 484) assert that tuberculous stenosis of the small intestine in children, like other tubercular lesions, is generally found in the lower part of the ileum. It may involve the cæcum. The number of stenoses and the distance between them vary considerably. They are generally ulcerated, and the peritoneum and mesenteric glands are involved. Occasionally the stenosis is surrounded by a neoplastic mass. Obstruction is generally due to spasm, more rarely to stenosis or intussusception. The diagnosis from tubercular peritonitis is generally impossible.

Treatment.—Exploratory laparotomy should always be performed, and this may effect a cure without other interference, or at least improve the condition of the patient sufficiently to make a more radical operation possible. Spasm is almost always relieved by simple exposure to the air. Enterectomy should be performed if the condition of the patient permits and the disease is not too extensive; but removal of the mesenteric glands is useless and dangerous. Enteroanastomosis or intestinal exclusion may be performed if enterectomy is not possible, the latter only when the lesion is very near the cæcum.

IODINE CATGUT.

H. FUCHS (*Münch. Med. Woch.*, li, 1297) describes his method of preparing iodine catgut. The catgut, rolled on spools, is soaked for three days in a solution of one part each of potassium iodide and iodine in water. At the end of this time the gut is not only free from bacteria, but possesses distinct antiseptic properties. Threads handled in uncleaned hands for five minutes and placed in bouillon showed no growths. The consistence is like that

of shoemakers' thread, not stiff, and with no tendency to curl again after being straightened. This is due to the retention of its fat. If the gut is left in the solution too long, or too much is used for the amount of fluid, the latter loses color, and more iodine must be added. The gut should not be put in water or carbolic acid solution before using, as iodine is washed out. It does not lose its strength by drying, and may be carried dry. In the tissues the iodine is absorbed from the gut in about two days, and acts as a local antiseptic; but on the skin surface it is not absorbed and therefore, acting as an escharotic, causes stitch abscess.

Advantages.—(1) Ease and rapidity. (2) Antiseptic properties. (3) The iodine does not irritate the tissues, even the peritoneum. (4) On account of strength and suppleness especially good for ligatures.

BRONCHOSCOPY.

H. NEWMAYER (*Münch. Med. Woch.*, p. 1682) reports that bronchoscopy has been used in over forty cases, and almost always with success. It should be performed in the prone position and in adults with local anesthesia. The throat and trachea must be rubbed with 20 per cent cocaine solution. In most cases the instrument can be introduced through the mouth, but if the mouth is very small or the tongue very large tracheotomy must be performed. Illumination is best made by a forehead lamp. It has generally been used for foreign bodies, and even when these are in comparatively small branches of the bronchi they can be seen and grasped with suitable forceps. The method can also be used for diagnostic purposes and for the dilatation of bronchial stenosis.

OCCCLUSION OF THE LARGE INTESTINE.

KREUTER (*Münch. Med. Woch.*, li, 1685) says that when the large intestine is occluded the cæcum is always the part most distended, on account of its thinner walls, and because the greatest amount of feces and gas normally collects here. The fact that the ileocæcal valve prevents escape upward, and that the continuity of the colon is interrupted by valve and angles, also aids in making the danger

from rupture or gangrene greatest there. The worst distention is seen in cases of chronic obstruction with acute increase. Volvulus of the flexure, however, with arrest of circulation, is more apt to lead to dangerous meteorism of the sigmoid flexure. A stenosis which is still permeable may nevertheless lead to gangrene and peritonitis; in all cases, therefore, of meteorism in stenosis in which a radical operation is not possible, an artificial anus should be established in the cæcum, as the great danger is from overdilatation of this part.

DEFORMITIES OF THE NOSE AND INJECTED PARAFFIN—TWO AND A HALF YEARS' EXPERIENCE.

The successful outcome of DOWNIE'S (*British Medical Journal*, November 5, 1904) treatment of nose deformities with injections of paraffin contrasts with the results obtained by less fortunate practitioners, who of course advise against the method. He has operated on over one hundred cases within two and one-half years, with complication in only one instance, with extenuating features.

Every antiseptic precaution should be observed. The skin of the nose, forehead, and cheeks should be prepared at least twelve hours before operation by cleansing with spirits of turpentine, followed by rectified spirits of wine, and that again by carbolic acid lotion (1 in 40), and a carbolic dressing should be worn over night.

Immediately before operation the skin should again be well cleansed and washed over with carbolic lotion (1 in 20). Then, a few minutes before making the injection, a band of celloidin is painted across the nose at the level of the eyes, and continued down on each side of the nose, following the line of junction between the nose and the cheek. As this dries it contracts, and, acting like a tourniquet, it helps to prevent the paraffin, while yet in a fluid state, from passing into the cellular tissue in the infraorbital region or upwards towards the forehead.

The paraffin used is a mixture of hard and soft paraffins in such proportions as to give a paraffin with a melting point of 106° F.; it is sterilized by heat. Vaseline melts at or near the normal temperature of the body, and being more easily affected by external pressure, it cannot

give the same solid support to a depressed area that a harder substance will. The harder paraffins preferred by some operators, on the other hand, are not only difficult to work with, but on account of the higher temperature required to melt them they become positively dangerous. The hot paraffin may cause destruction of the tissues with which it comes into contact, causing scalds or even sloughs, or, as has been reported, thrombosis may follow.

The most suitable syringe is the 10 cubic centimeter serum syringe, with a screw attachment for the needle. The syringe is sterilized by boiling.

The paraffin is melted by immersion in a water-bath at a temperature of from 150° F. to 160° F., and the syringe, previously warmed in the flame of a spirit lamp, is charged with the paraffin, the quantity taken up being from 6 to 8 cubic centimeters. It should be taken into the syringe direct from the bottle. The needle is then adjusted and the air expelled.

As the paraffin passes from the syringe into and through the needle it rapidly cools, and if it solidifies it will block the needle. This is effectively prevented by an electric heating device. It consists of a coil of fine platinum wire wound round the needle, previously insulated with cotton thread, carrying an electric current, the strength of which can, through a rheostat, be easily and accurately regulated. When in use the platinum wire is in turn surrounded by a layer of moistened gauze to further insure the more equable distribution of the heat.

In making the injection, the skin is punctured by the needle to one or other side of the middle line without any preliminary incision, and the point of the needle is then pushed subcutaneously to the center of the most depressed area. The fluid paraffin is then slowly injected, care being taken during the injection of the fluid to have the root and sides of the nose firmly compressed by the fingers of an assistant to further prevent the escape of the molten paraffin beyond the confines of the nose. As soon as the paraffin enters the tissues it should be molded by the surgeon's fingers, and when a quantity sufficient to remove the deformity has been introduced the injection is stopped. Before the needle is withdrawn,

however, a fine stream of cold sterilized water is poured over the surface to hasten the setting of the paraffin and to lessen the chance of any of it escaping through the puncture opening. The greatest care should be taken to inject no more paraffin than is necessary to remove the deformity. If more than that be injected the surgeon will fail in his object, and by the overstretching of the skin and by the amount of pressure used while injecting it he will risk the production of complications. When the needle has been withdrawn the puncture opening is closed with celloidin.

In the performance of the operation Downie used a general anesthetic in two cases only—in his first case, which was an experimental case, and in the case of a little girl who was in much fear of the operation. The introduction of the cocaine solution in local anesthesia may, by temporarily raising the sunken area, interfere with the ultimate result obtained from the paraffin injection.

The case that turned out unsatisfactory was unfavorable for the operation, the nasal bones being gone completely, the septum almost wholly absent, and the turbinates atrophied. As the patient had come a long distance, the injections were given, with the result that three days after the operation a small abscess formed on the side of the nose. This was opened, and some pus removed, with paraffin. Withal, the shape was materially improved.

In every case operated, the shape of the nose has been improved—in most cases conspicuously so—and the appearance of the nose continues to improve as time goes on. The discoloration and glazing of the skin, which are present for a few weeks after operation, disappear, and the skin becomes soft and healthy, so that some months after injection there is nothing to indicate that the keystone to the bridge of the well-shapen nose consists of a foreign body. A high body temperature does not affect the paraffin embedded in the tissues of the nose, and exposure to great heat or residence in a hot climate has not in any way influenced the shape or the position of the material injected.

Brady has had a case in which the paraffin remained as a foreign body after

traveling in the tissues, and thus gave rise to possible deformity. Upon operation he found considerable fibroid cicatrix but no paraffin.

Dr. Donnellan has had a case in which there were cicatricial adhesions, and the paraffin distributed itself on each side of the cicatrix, and the second condition was worse than the first, as it was impossible to afterwards remove the paraffin. He emphasizes the danger of embolism of the central artery of the retina, to prevent which pressure upon the root of the nose should be applied.

Smurthwaite gives the results of some experiments in the injection of paraffin into dogs, in which in two months' time there was nothing but fibrous tissue resulting, all the paraffin having gone.

The use of hot water in the needle to warm it gives a false idea of the amount of paraffin injected. Migration is the result of too much paraffin introduced under too great pressure.

Repetition of the injection is necessary occasionally, because it is preferable to underdo it rather than overdo it. Unequal building up of the nose is due to delayed pressure of the thumb, and can be overcome by immediate pressure over the point of injection. Cicatrices should be first raised by a tenotomy knife, and injection performed two days afterwards.

CHOLECYSTECTOMY—SCOPE, METHOD, AND RESULTS.

Cholecystectomy, while not absolutely insuring a cure of cholelithiasis, is, according to LILIENTHAL (*Annals of Surgery*, July, 1904), the most radical procedure at the command of the surgeon. The primary operation is far safer than the secondary. Judging by his own experience, embracing forty-two cases, Lilienthal believes that primary cholecystectomy is, on the whole, an operation at least as safe as appendectomy. His method of operation he thinks is neat, accurate, and thorough.

An incision is first made from two to four inches long, running between the fibers of the upper portion of the right rectus muscle, at about the junction of its inner and middle third. The posterior rectus sheath and peritoneum are now incised between mouse-tooth forceps, and

digital exploration is made. The gall-bladder having been located, it is drawn towards the external wound. If the viscus is very tense, or is supposed to contain infectious fluid, it is isolated by gauze packings, and aspiration is performed to empty it as completely as possible. When the walls appear very friable it is even wise to incise and empty the viscus, closing the opening by ligature or clamp before proceeding with the extirpation. In the greater number of cases the gall-bladder may be grasped with an ovarian ring clamp applied near its fundus, which at the same time closes the aspiration puncture.

The patient is then placed in the proper position by arching the dorsolumbar skin well forward; gauze packings are laid over the neighboring viscera, and the parts are exposed with the help of blunt retractors. Traction upon the gall-bladder is continued, and an incision with scissors is made through its peritoneal covering at the fundus, about half an inch from its junction with the liver. One blade of the scissors is worked between the serous and fibrous coats of the viscus, and an incision parallel to its long axis is made, first on its anterior and then on its posterior aspect. Usually some tough fibrous tissue has to be divided in order to free the fundus from the edge of the liver. Then the viscus is further freed with the finger, care being taken not to lacerate hepatic tissue. Hemorrhage is usually very slight, and is easily controlled by packing. Near the cystic duct the connection between the gall-bladder and the liver again becomes more intimate, and it may be necessary to divide fibrous tissue with the scissors, controlling an occasional spurter with artery clamps. During this entire procedure traction is made by means of an ovarian clamp. When the cystic duct is reached it is caught with a clamp, the jaws of which are at a right angle with the handles. With a hemostatic needle a traction suture of silk or chromicized catgut is now passed directly through the cystic duct about one-quarter or one-third of an inch beyond the clamp (*i.e.*, between the clamp and the common duct). The ends of the suture are tied together, but the suture itself is left free, so that if desired it may be withdrawn after the operation.

To meet possible accidents two sutures may be put in. The gall-bladder is now ablated between the clamp and the traction sutures, after protecting any visible viscera with gauze. An assistant now makes traction by means of the sutures, raising the cystic duct towards the external wound. If the cystic duct is patent, bile will probably flow and the cystic artery or arteries will spurt. If there is no bleeding traction on the sutures should be released until the vessel spurts. It is then caught and ligated. This done, the rest of the operation may proceed at leisure.

The cystic duct being now freed from its fibrous connection with the liver, traction upon the sutures will bring the common and hepatic ducts into view, and if the cystic duct is patent, a large probe may easily be passed under guidance of the eye in either direction. If the cystic duct is not patent, it is not wise to trust to palpation in determining the presence or absence of calculi in the other ducts, but the cystic should be slit with scissors down even into the common duct, if necessary, or until there is free flow of bile. In the absence of stones, a large-headed probe may now be passed into the duodenum. Large stones in the common duct may be removed through a prolongation of the slit, and stones from the hepatic may be brought to the opening by manipulation, or may even be removed through a separate incision into the hepatic duct.

Being now perfectly certain that the passages are free, the incision, if there is one, into the common duct may be sutured, and the cystic, if not slit, may be ligated with chromicized catgut. The suture of the common duct may be so placed that the seam is at right angles to the long axis of the structure if there is any fear that a longitudinal seam might dangerously narrow the lumen. The seam in the stump of the cystic, however, should always run longitudinally, and the duct be ligated as if it had not been sutured. It is well to leave the chromic gut long, and not to remove the traction sutures, but to permit all the ends to emerge at the abdominal wound. It is rarely necessary to sew over the raw surface of the liver, and then only as a hemostatic measure in persistent oozing.

A slender cigarette drain is carried

down to the stump of the cystic duct; and the peritoneum and fascial portions of the wound are closed with chromicized catgut sutures, the skin being approximated with sterile zinc rubber plaster.

Shock after operation is not usually severe. Vomiting is not often troublesome. A change of superficial gauze may be required in two or three days, due to biliary discharge from the liver surface. The drain may be changed in from six to eight days and replaced by a small rubber tube for five or six days longer. The stump, if large, comes away in from ten days to two weeks or even longer; but if the cystic duct was not particularly thickened its stump may never be seen, the ligature of chromicized gut coming away alone. As soon as the stump ligature is out, a thick pad, made by wrapping a wide muslin roller with gauze, is bandaged firmly across the patient's abdomen below the sinus, so as to press its walls together.

Complete healing is accomplished in about four weeks, but has been secured in so short a time as fourteen days.

MOVABLE KIDNEY—TREATMENT.

After reviewing somewhat the recent literature upon the subject of movable kidney, SPRIGG (*American Journal of Obstetrics*, December, 1904) presents the following deductions concerning treatment:

1. The relief obtained from bandaging in any case will depend on the presence and degree of associated enteroptosis.

2. Fixation of the kidney in as nearly a normal position as possible is the correct method of surgical treatment.

3. In all cases where the relief of the symptoms cannot be obtained from either bandages or correct corsets, nephropexy is indicated.

VERMIFORM APPENDIX—IDEAL METHOD OF REMOVING.

From the numerous methods that have sprung up for the removal of the vermiform appendix, KELLY (*American Medicine*, December 31, 1904) deduces that there are three principal objects striven for by the various modifications of the operation, and he describes an operation which apparently meets all the conditions practically.

The first object is to remove the appendix without contaminating the surrounding peritoneum with any of the bacterial flora. The second is to treat the mucosa in such a manner as to prevent any contamination while closing the opening into the bowel made by the amputation. The third is to dispose of the stump so as to avoid any risk of infection after the closure. The ideal plan, of course, is one which meets these indications in the simplest manner, and is at the same time applicable to the largest number of cases. These indications are met by Skene's method, in which he uses the electrothermic forceps, and by that of Downes, who has produced a thoroughly practical electrothermic angiotribe. The use of these instruments, however, is attended with some difficulties, inasmuch as they must necessarily be limited to the armamentarium of the specialist, they are expensive, the apparatus is delicate, an electric current of exactly the right character and voltage is indispensable, and the current must be available when it is wanted.

To avoid these difficulties, and at the same time meet the specified indications, Kelly has devised a pair of crushing forceps with longitudinal grooves on the crushing surface and a bevel above. When this forceps is applied, it requires a force of from 25 to 40 pounds to lock the blades on the appendix, and a force of about 60 pounds to release them after the appendix has been cauterized. The only other special instrument required is the ordinary Paquelin cautery.

The method of operation is as follows: The appendix is exposed, and the meso-appendix is tied off. A circular suture of fine silk is then laid around its base, about a centimeter distant, but not drawn up. The appendix is then grasped at its base with the forceps and crushed, while just beyond the forceps (distally) it is seized with an ordinary artery forceps to prevent the escape of its contents. Paquelin's cautery is now used to amputate the appendix between the two forceps, when it is laid aside in the grasp of the artery forceps. The crushing forceps, which is now to be converted into a cooking, sterilizing, sealing iron, is carefully isolated by tucking dry gauze under each blade, so as to lift the end of the forceps up on a cone, away from all contact with the cæcum.

The next step, which is the most important one, is to keep the red-hot point of the cautery slowly traveling up and down the groove in the crushing forceps for from 40 to 60 seconds, so as to burn off every vestige of the stump, and at the same time to heat the forceps so thoroughly that the narrow ribbon of crushed appendix in its grasp becomes converted into a translucent gristle-like substance, in which the lumen of the appendix is completely destroyed. The lumen is so effectually obliterated that it never gapes. The final step is the tightening of the purse-string suture, and the inversion of the cooked base, after which the serosa is carefully united over the whole with another row of fine silk sutures.

The time consumed is about six minutes in all.

THERAPY OF LEUKOPLACIA URETHRALIS.

LUDWIG (*Münch. Med. Woch.*, li, p. 1743) reports three cases of leukoplacia urethralis, also called psoriasis urethralis, all due to chronic gonorrhea of very long standing, with no suspicion of lues. The patches were grayish-blue, with smooth and shining surface, irregular shape, and sharply defined edges. After the failure of all usual modes of gonorrheal treatment, a decoction was made of 200 grammes of blueberries (*Vaccinium myrtillus*) in 500 cubic centimeters of water, which was boiled down to 300 cubic centimeters, and pressed through a cloth. This decoction was diluted if it burnt too much. It was injected three times a day with an ordinary urethral syringe. This brought about a cure while other treatment was in progress.

OPERATING-ROOM AIR INFECTION.

As a result of his study of the subject of streptococci in the air of hospitals, especially the operating-rooms and wards, during an epidemic of tonsillitis, Rose now (*American Journal of Obstetrics*, December, 1904) concludes that there is what might be called hospital air. Under certain circumstances this air may become rich in pathogenic bacteria, and hence certain precautions should be taken concerning the balefulness of this air when much surgical work is to be done.

The streptococcus seems to become more virulent or more numerous during an epidemic of angina due to this cause, and since it is more virulent during an attack of tonsillitis, operators, assistants and nurses having such an attack should be isolated.

All those who have aught to do with the handling of surgical material before and during the operation should wear a proper mouth covering. All sterile surgical material should be exposed to the air as little as possible.

All operating-rooms should be frequently fumigated with an efficient disinfectant.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS—TREATMENT.

Cases of congenital hypertrophic stenosis of the pylorus, when first seen, belong in the matter of treatment in either one of two groups. The first, according to NICOLL (*British Medical Journal*, Oct. 29, 1904), is that in which exhaustion and emaciation are so pronounced that immediate operation offers the one chance of saving life. The second group is that in which the stenosis is probably partial only, and in which the question of operative interference may be postponed and the child treated by dieting and rectal feeding. There is always an element of doubt in the latter class.

Nicoll has had fifteen cases, including the one first reported in 1900 as successfully treated by operation. Nine of the cases have been operated upon, three of these being lost after operation.

The appropriate treatment, as carried out in the later cases, is a combined overstretching with gastroenterostomy. The surgeon opens the stomach, within easy reach of the pylorus, passes the sinus or dressing forceps through the incision into the stomach, and gradually forces them through the contracted pylorus. The pylorus is stretched until the peritoneal coat slightly ruptures. The further course of the procedure is determined by the general condition of the infant. If collapse be imminent, the stomach and abdomen are rapidly closed by suture. If the child's condition permit, however, the operation is completed by a gastroenterostomy, making use of the incision already

made in the stomach wall. As to the route, by the anterior the constriction may be dilated more thoroughly and safely, but the posterior route may be preferable at times.

Nicoll has found epigastric tumor detectable by palpation in this complaint in about 80 per cent of the cases.

EMBOLISM FOLLOWING OPERATION.

In his investigation of literature with special reference to his personal experience with embolism following operation, DEARBORN (*Annals of Gynecology*, November, 1904) finds but comparatively few cases recorded. He considers that in all probability the fatal cases on record do not represent the full number of deaths from this cause.

In almost all the cases recorded the condition occurred when the patient was doing well, often when his cure was considered complete. The common run of cases follow the classic lines of dyspnea, precordial pain, and almost instant asphyxia.

From the literature upon the subject it appears that thrombosis and embolism are more common after operations in the pelvis. It is quite possible also that many cases of pleurisy, pneumonia, and pulmonary abscess following operation are really due to emboli.

Large emboli almost always cause speedy death by syncope or asphyxia; very small emboli usually run a favorable course. Any sudden increase in pulse-rate during convalescence, the temperature remaining about normal, should remind the physician of the possibility of thrombosis.

If there is evidence of either phlébitis or thrombosis, rest must be absolute.

Reviews.

MEDICAL DIAGNOSIS. A Manual for Students and Practitioners. By Austin W. Hollis, M.D. Illustrated. Lea Brothers & Co., Philadelphia and New York, 1905. Price \$1.00.

This small volume of about 300 pages belongs to the "Medical Epitome," or Quiz, Series, which has now attained considerable popularity. It does not profess to be an exhaustive work upon the sub-

ject, but will doubtless prove useful to students and physicians who are desirous of preparing themselves for an examination. For this purpose it can be most cordially recommended.

THE INTERNATIONAL MEDICAL ANNUAL AND YEAR-BOOK OF TREATMENT FOR 1905. E. B. Treat & Co., New York. Price, \$3.00.

The Medical Annual is probably well known to many of our readers. It is an epitome of medical progress during the past year. It contains 620 pages; the pages in this issue being somewhat larger than those in previous ones. Amongst the contributors for the present volume we find such well-known names as Ewald of Berlin, Hammond of New York, Murrell of London, Stockman of Glasgow, and Williams of Bristol. Interesting articles upon abdominal surgery by Mayo Robson and upon the treatment of pneumonia by De Lancey Rochester, of Buffalo, are found in its pages. The dictionary of materia medica and therapeutics is prepared by Stockman and his assistant, Charteris. Interesting chapters upon immunity and the x-rays are also included.

THE NAKED-EYE ANATOMY OF THE HUMAN TEETH. By Thomas A. Constant. John Wright & Co., Bristol, England, 1905.

This is a monograph, the character of which is well described in the title. It is illustrated by a number of very well executed plates, diagrams, and outline sketches. Naturally it does not possess much interest to the physician, but to the dentist it can be commended as a scientific treatise upon the subject in which the author is interested.

MEALS MEDICINAL. By W. R. Fernie, M.D. John Wright & Co., Bristol, England, 1905.

The title-page of this book bears, in addition to the title already given, "Herbal Simples; Curative Foods from the Cook instead of Drugs from the Chemist." It is a curious and interesting volume, containing much that is useful and some things that are unnecessary. Mixed with much good advice as to diets and foods are verses and quotations from standard literature. We find descriptions of almost everything that can possibly be taken inside of the human body, from absinthe and the various acids to wasps'

nects, chocolate, and Mayonnaise salads, and we learn that many fruits and flowers regarded for their beauty, rather than for their nutritious properties, can be taken with advantage. As a matter of fact the information which is of value to the physician might be embodied in a work half the size, but it is good reading and contains much information which is of interest if it is not of use. The book concludes with an index of diseases and the various foodstuffs and products of the kitchen and field which may be employed for their relief.

AILMENTS OF WOMEN AND GIRLS. By Florence Stacpoole. John Wright & Co., Bristol, England, 1904.

The character of the illuminated binding and the theme of this work render one a little suspicious as to the class of readers for which it is intended. Evidently it is not meant for medical men alone, but rather as a popular treatise which will "throw light in dark places" for women who are ignorant of their general health and their pelvic organs in particular. The authoress has had the advantage of excellent advice from Dr. Cullingworth, the obstetric physician to St. Thomas's Hospital, of London. There are fourteen chapters in the volume of 238 pages. The first deals with the uterus and its surroundings, the next with menstruation, the third with amenorrhea, and the following chapters with other disorders of menstruation, until we come to Chapter VIII, which discusses displacements and inflammations of the uterus, and this is followed by others upon inflammatory disorders of the vagina and vulva, the menopause, anemia and chlorosis. The final chapters deal with backache, constipation, piles, headaches, hysteria, and neuralgia! We think that the introduction of prescriptions in a book of this kind is decidedly out of place, as it is quite impossible for patients to prescribe for themselves in the conditions which are discussed, and we must also take exception to the frequent mention of a large number of preparations which are distinctly proprietary in character. These facts render it quite impossible for physicians to recommend the work to their patients, but they themselves can find here and there much information which will be of value in a small way.

ERRORS OF REFRACTION AND THEIR TREATMENT. A Clinical Pocketbook for Practitioners and Students. By Charles Blair, M.D. John Wright & Co., Bristol, England, 1905.

This little book of 100 pages deals in a very elementary way with the subjects named in its title. It is scarcely as large as a quiz-compend, and does not contain enough information to satisfy the specialist in ophthalmology. It might prove of some value to the student who wishes to refresh his memory in regard to certain points concerning refraction and failure of the ocular muscles.

THE MODERN MASTOID OPERATION. By Frederick Whiting, A.M., M.D. Illustrated by 25 Half-tone and 23 Key Plates Made from Original Drawings. P. Blakiston's Son & Co., Philadelphia, 1905.

It is so rare that the technique of a single operation is deemed worthy of the space accorded by a volume of nearly 250 pages, that this work of Whiting is specially noteworthy. The title completely covers the scope of his monograph. The book opens with a historical narration of the development of the operation and continues with the pathology of suppurative mastoiditis. Preliminary preparations for the operation and the technique of surgical intervention are described in minutest detail. The dressing of the wound, its postoperative care, the indications for operation, and the differential diagnosis of mastoid disease from furuncle complete the work, with the exception of a chapter devoted to the enumeration and description of the instruments required for the mastoid operation, and a final one devoted to conclusions. In general the operation described has for its principle the formation of flaps which fully expose the surfaces attacked; the complete removal of the mastoid cells, including all the ventricular spaces and diploic structures at the posterior root of the zygoma; and the extirpation of the mastoid tip. He emphasizes the advantage of packing the wound with gauze covered by fenestrated rubber tissue, claiming that thus the pain incident to subsequent dressings is completely avoided.

Since operation upon a suppurative mastoid is one frequently required and often performed by those unskilled in the proper method, this work is likely to serve a most useful purpose. By emphasizing

the value of the complete operation it will lessen the number of cases which after less radical surgical intervention suffer from prolonged suppuration incident to remaining necrosed bone, finally demanding a second operation. It would seem, however, that the admirable directions contained in this book might have been condensed and that the grave intracranial complications of mastoiditis and their treatment should have been discussed, since it is these which render mastoiditis such a serious affection.

The illustrations are abundant and admirable.

GYNECOLOGY, MEDICAL AND SURGICAL. Outlines for Students and Practitioners. By Henry J. Garrigues, A.M., M.D. With 343 Illustrations. J. B. Lippincott Co., Philadelphia and London, 1905.

This book, which must not be confounded with a larger work by the same author entitled "A Text-book of Diseases of Women," has been prepared for students and for the general practitioners who in their daily work are required to know at least the essentials of modern gynecology. Considering the comparatively small size of the book it covers the subject extremely well. The author includes under the general term "gynecology" diseases of the urethra, the bladder, the ureters, and of the rectum and anus. The omission of the kidneys, intestines, liver, and stomach seems to indicate that the author has not become thoroughly modernized, although other evidences to this effect are wanting in his work. The book is constructed on the ordinary principles of these works, with the exception that anatomy, embryology, rare diseases, and unusual operations are practically omitted. Directions for minor operations and ordinary office technique are given in detail. In the section on sterility, azoöpermia of the male is attributed to latent stricture of the urethra. This is practically never the cause of such a condition.

The section on diseases of the bladder is scarcely satisfactory from the modern standpoint, nor can the chapter upon diseases of the rectum and anus be commended as representing the latest and best writings upon these subjects. Nevertheless the book will be found extremely useful to those for whom it is intended.

Correspondence.

LONDON LETTER.

By G. F. STILL, M.A., M.D., F.R.C.P.

Spring has been a fruitful theme for poet's song from time immemorial, even if some utilitarian mind like Virgil's has seen in it only "a time for the sowing of beans;" but to the medical man in London spring is the season of lectures, lectures, and still more lectures! The College of Physicians, the College of Surgeons, and the various medical societies all conspire to overwhelm the medical mind with a bewildering outburst of annual lectures. I cannot pretend to have been present at all of them; I am not even aware that any one has ever yet accomplished this feat; and I shall select only for this letter what appear to me to be some of the most practical points of interest brought forward by some of the lecturers.

Dr. G. H. Savage delivered the Lettsomian Lectures before the Medical Society on various mental disorders, and made some interesting remarks on the production of mental disturbance by various poisons. In general, he said, frequently repeated doses of a poison have more serious effect on the mind than one large dose. The result of various poisons is greatly affected by idiosyncrasy: for instance, a minute dose of cocaine will cause mental symptoms in some people—in one case temporary delirium, in another case stupor, resulted from the use of cocaine to deaden the pain of tooth extraction. Similarly, after small doses of atropine some persons show mental disorder, so also after various anesthetics; and in several cases iodoform dressings have caused temporary insanity.

The tendency to mental disturbance from poisons may be acquired, for instance, after injury to the head, or after sunstroke there is sometimes an intolerance of alcohol which shows itself at once in some mental abnormality when a dose of alcohol is taken, which produced no such effect before the injury.

The type of mental disorder produced varies with different poisons. With some the defect is chiefly sensory, with others intellectual, with others moral; the patient with chronic alcoholic insanity shows chiefly loss of memory for recent events, a condition very like senile degen-

eration; the morphinomaniac is distinguished by his confusion of ideas, and his marked moral decadence; the cocaine-taker by his hallucinations—he hears voices, feels worms under his skin, and so forth.

But the poisons which produce insanity are not only those from without, but also those from within: disturbance of metabolism, whether it be by Bright's disease or diabetes, or by some severe emotion or fright, may disturb the mental process; and so also may infective diseases of all sorts, syphilis, typhoid, or influenza. It is curious how slight the attack of influenza may have been which is followed by mental disorder, and perhaps more curious still are the lucid intervals which sometimes result in persons already afflicted with chronic insanity when they happen to contract influenza.

The Erasmus Wilson lectures at the College of Surgeons by Mr. Dudgeon and Mr. Sargent dealt with the bacteriology of peritonitis, a subject which nowadays has a very practical aspect. Perhaps in no part of the body is the beneficent action of the much-abused microorganism more clearly shown than in the peritoneum. Infection of the peritoneum is sometimes spoken of as if it meant inevitable death unless the surgeon is immediately called in, but these observers show that not only can peritonitis of bacterial origin subside without an operative interference, but bacterial infection is under certain circumstances nature's method of saving life. The staphylococcus albus was found to be present in the peritoneum in cases of intestinal obstruction, of strangulated hernia, and so forth; and when this microorganism invades the peritoneal cavity, there are found to be large numbers of phagocytes there also, cells which are able to destroy bacteria; and it seems that the function of this microorganism, which itself has very little virulence and can be inoculated into the peritoneum of a guinea-pig without causing death, is to stimulate the advent of phagocytic cells, which can overpower the more virulent microorganisms which attack the peritoneum in severe conditions. In some cases of peritonitis this staphylococcus albus is the first microorganism to reach the peritoneum, and by the time the colon bacillus invades the peritoneum, as it does later when the wall of the bowel has

been much injured or become necrotic, there are already, thanks to the staphylococcus, so many phagocytes present that they may overwhelm the virulent colon bacillus altogether.

Any general washing of the peritoneal cavity in cases of peritonitis may actually diminish the patient's chances of recovery by washing away a large number of the phagocytic cells. But there are other points to be considered in regard to this question of washing: it is practically impossible to cleanse the whole peritoneal cavity, and the risk of washing infection into remote parts of the peritoneum must be remembered. On the other hand, infections with certain microorganisms, particularly the streptococcus pyogenes and the bacillus pyocyaneus, are extremely virulent and seldom admit of recovery; the phagocyte appears to be powerless against them. If, therefore, bacteriological examination shows the streptococcus—the bacillus pyocyaneus unfortunately cannot be detected without methods too elaborate for immediate determination—then the only hope seems to be in thorough washing of the whole peritoneal cavity as far as possible.

Should the layers of fibrin seen on the peritoneum be peeled off at the operation? According to Messrs. Dudgeon and Sargent nothing but harm is done by this procedure; it damages the underlying endothelium of the peritoneum, and upon the intact preservation of this endothelium depends the possibility of such complete absorption of fibrin that no adhesions shall be left; it also exposes the sub-endothelial blood-vessels, and so facilitates absorption of toxic material into the blood. Where the endothelium has been left intact it becomes thickened after an attack of peritonitis, and to this is attributed partly the diminished danger of peritonitis after several attacks.

The advisability of giving opium in peritonitis is always a difficult question; as we all know, it may obscure symptoms on which the decision for or against operative measures may depend. But on entirely different grounds the Erasmus Wilson lecturers oppose the use of opium: the colon bacillus, they say, becomes most virulent when the bowel is obstructed or inflamed, and probably is also most apt to make its way out into the peritoneum in such cases; it is therefore all-important

that these bacilli should be passed out of the bowel by the natural outlet as quickly as possible. If now opium is given, and the movement of the bowels hindered thereby, the retention of these virulent bacilli, and consequent virulent infection of the peritoneum, is encouraged. The lecturers had little to say in favor of anti-toxin treatment of peritonitis; they said that at present we have no serum which can deal with the results of colon bacillus infection, and as it is this bacillus which is responsible for the large majority of the fatal cases of peritonitis, it is useless to administer antistreptococcic serum regardless of the bacteriology of the case.

At the Medico-chirurgical Society this month there has been a discussion on the after-results of operations for appendicitis, and several of the most distinguished surgeons in London took part in it. Sir Frederic Treves opened the debate with an admirable paper dealing chiefly with his own experience of the operative treatment in a large number of cases. This paper has been published and referred to in various journals, so I shall not refer to it in detail. The most interesting points brought forward were the frequency of supposed recurrence of appendicitis after removal of the appendix, and the inadvisability of attempting to remove the appendix as a routine procedure after operation for perityphlitic abscess.

Several speakers confirmed Sir Frederic Treves's observation that most of the supposed attacks of appendicitis after removal of the appendix were due to entirely different causes—some to movable kidney, some to renal or biliary calculus, some to diseased ovaries, some to colitis, and some apparently to mere neurosis. But it was pointed out that in some cases there was a true appendicitis after a removal of the appendix which had not been complete, and a second operation became necessary to remove the diseased stump of the appendix. Having regard to the number of cases in which various speakers had seen subsequent attacks of exactly the same type as those attributed to appendicitis originally cured by removal of renal calculus or fixation of a movable kidney, or removal of an ovary, the carping critic might perhaps suggest a doubt as to the original diagnosis. One thing is quite certain, that it is a risky thing nowadays to refer any pain or dis-

comfort to the right iliac fossa, at least if you value your appendix.

The very difficult question as to whether the appendix should be removed subsequently in cases where an operation for perityphlitic abscess had been done gave rise to much difference of opinion. Sir Frederic Treves said that usually the appendix gave rise to no further trouble, and should therefore be left alone; moreover, the search for it in the midst of much adhesion might be very difficult and dangerous. Mr. Battle, on the other hand, held that if an appendix were so seriously diseased as to cause suppuration it would seldom recover, and should therefore be removed: the time he would choose for removing it is soon after the abscess wound has closed, before the adhesions have become tough and dense. It was refreshing amid the general clamor of surgeons thirsting for operation, and "early operation," to find one physician with the courage to protest against indiscriminate operation. Dr. Samuel West pointed out that 72 per cent of cases with acute appendicitis recovered without operation; only a certain proportion of these recur, and it might be necessary eventually to remove the appendix in the quiescent stage after one of these recurrences. Each case, he maintained, should be considered on its own merits. He ventured also to make a statement which is probably quite at variance with present views: he thought there was no evidence that appendicitis has become more common; the increase is apparent, not real.

NUCLEIN IN SEPTICEMIA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: I have recently had a case of septicemia in which nuclein was used with such brilliant success that I thought perhaps a brief report of the same might be of interest. In view of the generally unfavorable prognosis of acute septicemia, the outcome of this case is certainly remarkable.

The history is as follows: J. V., aged nineteen, first seen by me on January 21 of the present year, had received an abrasion over the knuckle of the right index finger three weeks before. There was swelling and distinct fluctuation, for the relief of which I advised incision. This the patient delayed for four days, when

he was seized by a chill, accompanied by headache, nausea, and vomiting. He complained of pains radiating from the finger to the shoulder and even to the back. His temperature was 103.6°, pulse 100. Locally there was intense inflammation around the seat of injury, but fluctuation had disappeared. The axillary glands were enlarged. I at once incised freely to the bone, and administered a hypodermic injection of 15 minims of the 5-per-cent solution of nucleinic acid, P., D. & Co. The patient was put to bed and was given strychn. sulph. gr. 1/30 every three hours, and two drachms of whiskey every four hours, with hot antiseptic bathing for the hand. In the course of six hours there was a remarkable change for the better. The feeling of malaise lessened and was followed by a heavy sleep. The convalescence thereafter was rapid and uncomplicated.

That this was a case of typical septicemia in its early stage there can be no doubt. The wonderful improvement could have been due to only one thing—nuclein. I am more convinced of this fact because I have seen several cases treated on exactly similar lines, with the exception that no nuclein was used, and these cases were all fatal. I shall not go into a discussion of septicemia. Neither shall I dilate on the physiological action of nuclein, further than to state that I believe its power is in its ability to increase the number of leucocytes, the soldiers of the body. I hope, however, to read in the GAZETTE and elsewhere of further cases treated with this medication. I am confident that the results of such treatment will be good.

Trusting my experience in this case will be helpful to others, I am,

Yours fraternally,

HERBERT ALLISON BECKER, M.D.

ST. CHARLES, IDAHO.

A SUBSTITUTE FOR THE KELLY PAD.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: A substitute for a Kelly pad may be quickly made by rolling up half a dozen newspapers to form the sides and back, and using four or five layers to form the bottom. Complete the whole by spreading over a rubber sheet.

Yours truly,

J. FRED LESSEL.

HALIFAX, N. S.

—THE— Therapeutic Gazette

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THE USE OF THE ANTITOXIN OF DIPHTHERIA IN THE TREATMENT OF CEREBROSPINAL MENINGITIS.

BY RANDLE C. ROSENBERGER, M.D., PHILADELPHIA,
Assistant Professor of Bacteriology in the Jefferson Medical College of Philadelphia.

[From the Laboratories of the Jefferson Medical College Hospital.]

The employment of the antitoxin of diphtheria in the treatment of cerebrospinal meningitis is attracting a great deal of attention, not only from the clinician but from the bacteriologist. As to its curative effects too few cases have been treated to give a definite opinion. According to specificity, it seems improbable that a definite or specific reaction occurs. It

might, however, represent a bactericidal action of the blood serum.

When a rabbit, guinea-pig, horse, or any animal, including man, receives inoculations of a specific substance, the body becomes so accustomed to it that in time the substance produces no effect either locally or systemically.

The specific substance may be a bacterial poison (a toxin), blood from another species, a chemical, a vegetable poison, or it may be bacteria in a dead or living condition. Repeated inoculations will finally bring the body to a state of immunity. This condition is due to the formation in the fluids of the body, and especially the blood serum, of a substance (or substances) causing certain reactions when brought in contact with the materials or cells used to bring about immunity.

Take, for example, a rabbit inoculated repeatedly with human blood. The serum of this animal when brought in contact with human blood, or fluids containing human blood, will cause a precipitation and disintegration of the blood cells—cytolysis. Take the serum of this same rabbit, and bring it in contact with the blood of a healthy rabbit, and no such reaction takes place.

Inoculate a guinea-pig with the blood of a rabbit, and in the serum of the pig there is developed a substance (or substances) which destroys the red cells of the rabbit's blood, but will not destroy or alter in any way the blood of another guinea-pig. Let us use ricin to inoculate an animal, at first in very small, non-poisonous doses, and gradually increase the dose and frequency of inoculation until an extremely toxic dose is administered. The animal becomes immune to the poison, and in its blood there is formed a substance which is distinctly antagonistic to ricin—antiricin.

Now let us use the toxin of the bacillus of diphtheria and inoculate an animal, first with non-lethal doses, and increase the amount gradually until we bring about such a condition of immunity that enormous doses can be withstood, even when injected into the circulation. In the blood serum of such an animal is developed a substance which acts directly against the toxin, an antitoxin. It does not exert this effect upon all toxins—*i.e.*, those elaborated by other bacteria. In other words, the substance which is formed in the body of an animal immunized is specific only for the substance with which it was inoculated.

All of these substances, whether produced by the inoculation of blood, of bacteria, of toxin, or vegetable poison, belong to a group of substances termed antibodies. The action of each is, so to speak, specific, and each is formed by a definite chemical union. If there is no union brought about, we will not have any antibodies formed. As to the antitoxin of the bacillus of diphtheria, this substance acts specifically against the toxin of the bacillus of diphtheria. It does not kill the bacillus, but, as the name indicates, it neutralizes the toxin, thus inhibiting systemic poisoning. If we had the streptococcus pyogenes or the pneumococcus as the causative factor in the production of a

pseudomembranous process which resembles the one produced by the bacillus of diphtheria, we would not expect the antitoxin of diphtheria to cure this affection. Instead of using the antitoxin of diphtheria we would resort to what is known as an antimicrobial serum, one which acts against a specific bacterium, and hence would administer antistreptococcus or antipneumococcus serum. The reason is that we wish to destroy the bacteria, and not neutralize the toxin. Further, we know that the streptococcus and the pneumococcus frequently find their way into the general blood-supply, causing bacteremia, and this fact also prompts us to use an agent that will destroy the bacteria. We would not use an antistaphylococcus serum for a streptococcal or pneumococcal process, but we must use a specific substance in each particular case. In diphtheria, the bacillus remains distinctly localized where the pseudomembrane has formed, and only on the rarest occasions is this organism found in the blood during life. We do not resort to an antimicrobial serum, but knowing that the bacillus is constantly elaborating a toxin, we administer an antitoxin.

As to cerebrospinal meningitis, this malady is generally conceded to be due to the meningococcus of Weichselbaum. At the present time there is no antitoxin for the toxin of this organism. If the disease is due to a specific bacterium, then a specific serum, an antitoxic or antimicrobial one, should be used in the treatment of the malady.

According to the latest theory of immunity (Ehrlich's) there must be some suitable receptor or side-chain existing in the body before antibodies are formed. This is well illustrated by taking the toxin of the bacillus of diphtheria. When this substance is elaborated and diffused through the system (if the latter is at par) there is a combination of the toxin with the suitable receptor, and this union brings about the formation of the immune body. If there is no suitable receptor present, then no chemical reaction takes place, because the receptor must have some assimilable foodstuff—*i.e.*, toxin.

There is therefore no good reason to believe that antidiphtheritic serum can be of value in cerebrospinal meningitis.

THE USE OF DIPHTHERIA ANTITOXIN
IN THE TREATMENT OF CEREBRO-
SPINAL MENINGITIS.

By M. E. PENNINGTON, PH.D.,

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Director Philadelphia Clinical Laboratory.

The unusual prevalence of cerebrospinal meningitis during the past year, and especially during the winter of 1904-05, has reawakened the medical profession to the fact that, while the disease is believed to be highly infectious and dependent upon the presence in the brain and cord of certain bacteria, their source and path of entrance are still unknown. The extreme difficulty attaching to the isolation and cultivation of the diplococcus intracellularis meningitidis has, so far, curtailed our knowledge of its biology; and the fact that the reproduction in animals of symptoms of spinal meningitis after inoculation with this diplococcus has been accomplished by but few bacteriologists, and then only when the cultures were brought into direct contact with the brain or cord, has proven an insurmountable bar to the development of a rational prophylaxis or therapy along the lines laid down by modern theories of immunity. Until such a system has been founded upon test-tube studies and fixed by animal inoculations we must expect to hear of many curative procedures, differing widely among themselves, and yielding beneficial results in the hands of their advocates. Lacking accurate scientific data upon the bacterial history of this disease, we are not in a position to positively oppose some of these methods; neither, on the other hand, are we justified in unreservedly adopting them until laboratory as well as clinical evidence shall be forthcoming.

Among the very recent methods most widely noted is the inoculation of diphtheria antitoxin as a curative agent in cases of cerebrospinal meningitis. Waitzfelder ("The Treatment of Epidemic Cerebrospinal Meningitis," *Medical Record*, vol. 67, pp. 361-365), acting upon some unpublished laboratory experiments of Wolff, of Hartford, Connecticut, has used antitoxin with encouraging results in seventeen cases of the disease coming to the Gouverneur Hospital, New York, for treatment. Three of the patients died; five recovered completely;

and nine, at the time the paper was written, were still under treatment, five of them being considered out of danger.

If a more extended application of this method in the hands of other clinicians bears out the experience cited by Dr. Waitzfelder, it will be of great interest from not only the humanitarian standpoint, but from the scientific side as well, since the use of an antitoxin which is specific for one infection to neutralize the toxin of a totally different organism is at variance with the theories best suiting the facts of immunity.

Among all the antitoxins of recognized curative value, such as the antitoxins for cholera, tetanus, rabies, bubonic plague, etc., diphtheria antitoxin is preëminently the most successful when applied to combat the toxins produced by the Klebs-Loeffler bacillus. Indeed, so perfect is the chemical mechanism between the manufacture of toxin by the diphtheria bacilli on the one hand and its union with the specific antitoxin to form a physiologically inert substance on the other, that such a union has led to a most promising method for the differentiating of certain organisms whose morphology, cultural characteristics, and pathogenicity to animals might otherwise lead to their classification as true diphtheria bacilli. Against these organisms diphtheria antitoxin is neither protective nor curative, and according to Hamilton (*Journal of Infectious Diseases*, vol. 1, No. 4, 1904) is distinctly deleterious, animals so treated dying sooner than those without antitoxin.

Since the promulgation of the theories of Ehrlich, Morgenroth, and their school, bacteriology has received a distinctly chemical impetus, resulting in the accumulation of a great mass of facts tending to show that specific organisms produce specific substances characteristic of their especial species, and that these compounds are neutralized by other substances produced by the living host under the stimulus of the presence of the life products of the specific bacteria.

The deeper our insight into this most complicated chemical problem the more fully are we led to believe in the individuality of the organisms responsible for infectious diseases, and each step forward in the preparation and administration of antitoxins would seem to show that their

greatest efficacy waits upon an absolute similarity between the organism producing the disease and that furnishing the antitoxin which is to cure it.

*THE USE OF SPECIFIC PRODUCTS OF
TUBERCLE BACILLI IN THE TREAT-
MENT OF TUBERCULOSIS.*

By JAMES SAWYER, M.D.,
Asheville, N. C.

Judging from the reports we read in the current literature, the clinical results of the treatment of tuberculosis have materially improved during the last fifteen years. Several factors have undoubtedly been operative in causing the difference between periods prior to 1890 and those of more recent years; and the greater interest on the part of the medical profession, the gradual conviction with many that the disease is, in fact, a curable one, has, no doubt, had an appreciable share by leading to more painstaking methods in details in whatever plan of treatment is adopted.

The methods and remedies employed have been numerous. However, the hygienic and dietetic management, under which is included the so-called "open-air" treatment, and the climatic treatment have long occupied the first place; but it is only in the general appreciation of their value that the profession is practically agreed, for the details of their application are frequently a matter of controversy, even now after about two thousand years since physicians first resorted to these methods. There is hardly a drug or physical agency that has not been advocated for the cure of phthisis in the course of these many centuries, and most of them were rediscovered and claimed to be curative during the century recently closed.

This unrest and constant search for new and more effective curative agents indicates in an unmistakable manner that, although valuable, the dietetic and hygienic method alone leads to frequent disappointments. Especially is this evident in the meager percentage of enduring cures which have been shown in the various reports from private practice, public hospitals, and special institutions.

There is therefore no wonder that Koch's tuberculin, when given to the pro-

fession in 1890, caused the sensation it did, coming from an authority so great, and the one that, a few years before, had finally and permanently settled the cause of tuberculosis by the discovery of the tubercle bacillus.

The optimism engendered by this discovery, and the disappointment which followed when it was found to fail in curing all stages and phases of consumption, will for a long time remain an incident in the history of medicine, as well as a warning to future generations of physicians for thoughtful consideration, patient and personal investigations of any new proposition in therapeutics, before it is universally applied, or absolutely condemned; for Koch's tuberculin was evidently deserving of neither of these attitudes. Its diagnostic value became quickly evident, and was so strikingly manifest that it really had but few serious opponents. It is now generally accepted as the most sensitive and reliable agent in diagnosis where a differentiation between tuberculosis and some other affection comes up for consideration.

The therapeutic value of tuberculin has been, and is still, disputed, but the clinical results in the hands of those experienced in its use still speak unmistakably in its favor, although its strongest advocates had to admit its dangers, against which no amount of precaution seemed to afford absolute protection.

The scope of my paper does not allow me to follow this most interesting subject in chronological order, in which I might show the favorable and shadow sides of the old tuberculin, and the various attempts to improve the remedy, or to produce modifications that should be free from its disadvantages.

The later products of Professor Koch had more particularly in view the production of bacterial immunity, while an antitoxic effect was sought by Maragliano and others in a serum from animals previously treated with toxins of the tubercle bacillus. For the former purpose tuberculin R and tuberculin O were given to the profession in 1897, and soon thereafter a tubercle bacillus emulsion was placed upon the market in Germany, while in this country the watery extract of tubercle bacilli was introduced, with the same end in view. These prepara-

tions are not products of the culture fluid, but represent the bodies of the bacillus itself; the several preparations by Professor Koch containing the bodies of the tubercle bacilli in a state of fine division, while the tubercle bacilli extract, as made by Dr. K. von Ruck, contains the proteins after their extraction from the ground-up tubercle bacilli, with water.

It is with the latter preparation that I have sought to augment and improve my clinical results, and adhering strictly to the recommended selection of cases, I have thus far treated only those which had not reached the stage of the disease that is usually designated as phthisis—a fact which explains the comparatively small number which I am able to report upon, the majority of cases coming to Asheville having more advanced lesions.

Before, however, speaking of my results, I anticipate the frequently made objection that the class of cases under consideration also show good results without specific treatment, and that recoveries in this stage do not necessarily prove the relation of the result to the specific remedy employed.

In regard to such an attitude I shall simply point out that cases which have been known to recover spontaneously, without dietetic and hygienic advantages, or sometimes even under very unfavorable conditions, also belong, as a rule, to the early stages of pure tuberculosis, and that we could urge their recoveries in opposition to hygienic and dietetic methods with equal force. Therefore, under the circumstances, it is a matter of importance to determine what method, or combination of methods, will produce the best results in this class of cases, and likewise to exercise great care that we accept no case as a cure in which the disease has but assumed a stage of latency with absence of symptoms for the time being. For an accurate differentiation between latency and a cure we have but one sovereign diagnostic agent, and that is tuberculin, and next in importance is the absence of physical signs in the involved lung area. Since the class of cases under consideration are still free from destructive local changes, and have therefore as a rule no bacillary sputum, the diagnosis before treatment must also have been assured, either by preceding clinical course and presence of diagnostic

physical signs, or in instances of doubt by a positive reaction to the tuberculin test.

To save repetition, I will state here that the diagnosis of the cases presently to be mentioned has been assured in this manner in every instance, and that with the exception of but one case the physical signs of the disease have completely disappeared, that there was an entire absence of all subjective symptoms and return of good general health, and in several of the cases I have also had the opportunity of applying the tuberculin test, to which no general or local reaction occurred. Moreover, there has been no relapse in any case in which the treatment was continued long enough to warrant me in the discharge of the patient. This latter point I consider especially important in cases that have been discharged several years ago, particularly when the patient returned to the locality, occupation, and environment that had obtained under which the disease was contracted or had developed.

Proceeding now to the cases treated, I regret to have had the common experience which obtains when we treat patients at a distance from their homes, namely, that they often discontinue treatment at a period when a recovery, although in sight, has nevertheless not been obtained. Of such cases I have treated eleven with the watery extract of tubercle bacilli, for periods varying between one and three months. In every instance, however, more or less marked improvement, both locally in the affected lung area and as a rule in the general condition, was evident, the latter at times being of a degree that caused the patient to believe himself justified in discontinuing treatment. The degree of such improvement stood in relation to the time of treatment, and the doses that had been reached.

In fourteen other cases I have, however, been able to complete the treatment, and referring again to what I have said heretofore, as to the diagnosis and conditions on discharge, I mention them with a few details.

CASE I.—G. W., female, aged nineteen. General appearance good, slight anemia, and fairly well nourished. Temperature 98° to 99.8°, pulse 86 to 94. Some cough and expectoration; in the

latter a few tubercle bacilli were found. Slight loss in weight. Physical examination revealed slight dulness in the left apex with rough breathing, also crepitant and moist râles. She was treated with watery extract from May 2 to August 30, 1898, when no further evidence of tuberculosis could be found, the physical signs having disappeared and general health restored; she was therefore discharged as cured. She went home to Florida, was afterward married, and has children. When last heard from, about a year ago, she was in perfect health.

CASE II.—W. J. N., male, aged thirty-seven. Emaciated and anemic. Temperature 99.3° to 104° , pulse 96 to 110; frequent hacking cough, but no tubercle bacilli in sputum. Physical examination showed marked consolidation of right upper lobe, weak respiration, and some moist râles in the apex, while below the clavicle and along the anterior border the inspiration was harsh and expiration prolonged. He was treated with the watery extract from October 8, 1899, to March 3, 1900. At this time all physical signs had disappeared, his physical condition was excellent, and after his discharge he returned to his former home and resumed his occupation. I saw this patient this spring, and he had continued in perfect health.

CASE III.—F. H. F., male, aged twenty-one. Mr. F. came under my care May 21, 1900, with a temperature of 104° , pulse 160, suffering from an acute pleurisy with effusion of the left side. After recovery from this, slight consolidation in the upper lobe, on the same side, was found. To assure the diagnosis a tuberculin test was now made, to which he gave a decided general and local reaction. Under treatment with the watery extract the dulness spoken of disappeared, and he was discharged September 21, 1900, in apparently perfect health. In a recent letter this patient writes that he has followed his occupation ever since, and that his health is good in all respects.

CASE IV.—K. B., male, aged twenty-four. Somewhat anemic, of pale, ashy color; had lost weight. Temperature 100.4° , pulse 80 to 90, moderate cough, slight expectoration, no tubercle bacilli in sputum. Physical examination showed both upper lobes somewhat consoli-

dated, respiration weak, and a few crepitant râles were noted. Tuberculin reaction was positive. Patient was under treatment in the summer of 1892 for three and one-half months, when he was discharged as cured. His brother, a physician, writes me that he is still in perfect health.

CASE V.—R. B. M., female, aged thirty-six. Appearance and color fairly good. Temperature 99.5° , pulse 82 to 94. Complained of cough, slight expectoration, and loss in weight. Sputum did not contain any tubercle bacilli, but physical examination showed involvement of the left upper lobe and slight consolidation, with the usual auscultatory phenomena. She reacted to the tuberculin test, and was treated from October 3, 1900, to March 28, 1901, and then discharged with the disappearance of all local signs, and restoration of general health.

CASE VI.—R. I. K., female, aged thirty-one. Anemic, had lost steadily in weight and strength. Had a dry cough, and a moderate amount of expectoration, in which tubercle bacilli were present. Temperature 102° , pulse 100. Upper left lobe involved, marked dulness, weak respiration, with moist and crepitant râles. Patient was treated from October 28, 1902, to March 5, 1903. Her improvement was gradual but steady, and on her discharge all physical signs had disappeared and her general health was restored.

CASE VII.—N. D., female, aged twenty-three. Came under my care June 7, 1902, after an attack of bronchopneumonia with pleurisy. She showed slight rises of temperature, and had a slight cough. There being no expectoration, a tuberculin test was made, to which she reacted. She was treated with watery extract, and discharged September 27, 1902, with all the local physical signs cleared up and general health restored.

CASE VIII.—A. R. J., female, aged twenty-nine. General condition still good, but had lost in weight and strength. Temperature 99.6° , pulse 80 to 90. Moderate dry cough, and a small amount of expectoration, in which a few tubercle bacilli were found. Left apex and a small area to the right of the sternum showed percussion dulness, weak respiration, with crepitation on the left side, while moist

râles and rough inspiration were present in the area of the right side. Watery extract was given from February 11 to June 19, 1903. The tubercle bacilli and the expectoration had disappeared, the physical signs had all cleared up, and general condition improved, justifying the acceptance of a complete recovery, which was later confirmed by failure to react to the tuberculin test.

CASE IX.—E. W. H., female, aged thirty-three. General appearance good, somewhat pale; temperature 100.2°; pulse good, but a little rapid, from 85 to 98. Moderate cough, some expectoration, but no tubercle bacilli found. Tuberculin test positive. Left apex involved. Slight percussion dulness and rough inspiration with crepitant and few moist râles below clavicle. Treatment with watery extract was employed February 8 to May 19, 1903, and at the end of this period there were no more physical signs nor subjective symptoms. I saw this patient in the summer of 1904 and applied a tuberculin test, with negative result.

CASE X.—J. H. H., female, aged thirty-seven. Patient was still in good physical condition when she came under treatment. Her affection had been diagnosed as incipient tuberculosis by the physician who referred her to me. I found slight dulness and few crepitant râles of the right apex. Tuberculin test was employed, by request, and a decided reaction was obtained. Patient was treated from March 9, and discharged on July 10, 1903, when all objective signs and subjective symptoms had disappeared. Later a tuberculin test was made, with negative results. I had a letter from this lady in the summer of 1904 saying that she was in perfect health.

CASE XI.—R. R., male, aged twenty-one. Beyond loss in weight and signs of anemia patient was in fairly good condition. Temperature 101.5°, pulse 90 per minute. Cough and profuse expectoration, but no tubercle bacilli were found. Tuberculin used by request; reaction positive. The area involved was the right upper and a part of the middle lobe; where dulness with crepitant and moist râles and rough respiration were found. The patient had suffered from chronic bronchitis for ten years, and had also chronic postnasal, pharyngeal, and laryngeal catarrh. Watery extract was used

from October 9, 1903, to August 1, 1904. His improvement was slow and gradual at first, then more rapid until his discharge in the summer of 1904, when the physical signs and subjective symptoms had disappeared.

CASE XII.—A. H. S., female, aged nineteen. Patient very thin, pale, and weak. Came under my care after recovery from a very severe attack of grippe-pneumonia. Temperature 99.5°, pulse weak and rapid. She had a dry, hacking cough, with but little expectoration, in which no tubercle bacilli were found. Tuberculin test used; reaction prompt and positive. Right upper lobe was found involved to below the third rib. Her respiration was weak and attended by a few crepitant râles, with interrupted inspiration. She was treated from June 9 to October 1, 1904, at which time she had gained back her lost weight and more, her color had returned, and all her symptoms had disappeared. Physical examination showed nothing abnormal. A tuberculin test applied later proved negative.

CASE XIII.—M. P. M., female, aged twenty-three. General appearance good. Temperature 99.5°, pulse 90 to 100, slight cough, a very small amount of expectoration, and no tubercle bacilli. Right apex showed a few crepitant râles and also a few moist râles, with weak breathing. Tuberculin test gave positive reaction. Treated from January 9 to May 27, 1904, when all signs and symptoms had disappeared. Later a tuberculin test was made, and no reaction could be obtained. I saw this young lady recently, and she was still perfectly well, and another tuberculin test failed to cause any reaction.

CASE XIV.—M. A. S., female, aged twenty-three. Patient consulted me on account of throat trouble, and routine examination showed that the right upper and the upper part of the middle lobes were the seat of structural alterations. Patient gave a history of two attacks of pneumonia. She practically had neither cough nor expectoration, and in what she could supply of the latter no tubercle bacilli could be found. Temperature 99.4°, pulse good and generally about 80. Physical examination showed slight dulness in the right apex, weak respiration, and a few crepitant râles. The tuberculin test

was given and a positive reaction obtained. Treatment with the watery extract was begun on July 27, and continued to the present date (October 17, 1904). All physical signs have practically disappeared. The patient is now practically well, but I am still keeping her under observation, and expect to apply the tuberculin test before her final discharge. [N. B.—This patient was discharged December 29, 1904, after failing to react to the tuberculin test.]

You will note that I have not a single failure to record in the cases in which I had opportunity given me to actually complete the treatment; and I attribute this to the careful manner in which these cases were selected. Furthermore, I do not hesitate to express my belief that in most of those cases where the treatment was prematurely discontinued the then recorded improvement could easily have become actual and lasting cures.

I have no doubt that my results would have included failures of a more or less striking kind had I accepted advanced cases of phthisis, in which the adverse clinical course is so largely determined by complicating factors secondary to or entirely apart from tuberculosis.

My purpose in the first place was, however, to test and carefully study the action of the remedy in a stage of the disease where we have reason to believe its favorable action may become manifest, if such it has, and while the number of cases is comparatively small, the years of observation correspondingly limited, I nevertheless believe that the results are permanent.

For comparison with these results I have records of other patients who came under my care in equally favorable condition, and who were treated in all respects similarly, excepting that the specific remedy was omitted. In many of these cases I have seen subsidence of symptoms and gain in weight and strength which were gratifying to myself and the patients alike; but I have also observed advancing processes and the advent of confirmed phthisis in spite of much longer continued dietetic and hygienic efforts in connection with climatic treatment. Moreover, in the most satisfactory cases the physical signs did not disappear completely, and while the catarrhal signs often subsided, percus-

sion changes previously present were but slightly, or not at all, modified on discharge.

In some of these cases a tuberculin test was made at the end of the treatment, and almost invariably with the disappointment of a reaction following a small dose, showing that an actual cure had not been obtained, a fact which explains the frequent relapses of apparently cured patients when they leave the climatic resort for their home and resume their previous environment and occupation.

While I have not been able to apply a tuberculin test in all my cases discharged after treatment with watery extract of tubercle bacilli, in at least half of them the test was applied after a sufficient interval from the discontinuance of the remedy that the question of toleration acquired from a similar bacterial product was practically eliminated, and invariably without effect, although decided doses were used.

In other cases, where the test could not be applied by reason of distant residence, my information as to their continuance in good health justifies me in the belief that the results obtained will prove permanent.

For the present I feel justified in considering all of these fourteen cases to have made a satisfactory recovery, and I will only add that I have seen no undesirable complications or disagreeable incidents that could be attributed to the remedy; and likewise that the tuberculin test, whenever I have applied it, proved reliable and without harm to my patients.

INTESTINAL PERFORATION IN TYPHOID FEVER.

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The diagnosis of perforation of the intestine in typhoid fever is rather difficult—in fact, in some cases, it is impossible by the most skilled diagnosticians.

Take the pictures drawn by the different competent observers, and they differ materially in almost all instances. This in a measure is due to the difference in time at which the case is seen, and as Davis says, "It is my opinion that the

symptomatology of typhoid perforation, as given in our text-books, is often more nearly the symptomatology of general peritonitis than of mere perforation." The difference in the general condition of the patient at the time when perforation takes place, the difference in facilities for accurate observation among different reporters, and with the same reporters in different cases, and the rarity of the condition, making it unusual for any one observer to see a large number of cases, are all contributing causes to this condition of affairs.

I was impressed with the small amount of literature, and with the difficulty encountered when one attempted to get a fairly accurate clinical picture from any one paper upon the subject. This has been the incentive to my presenting an analysis of as much of the literature as was available to me. Collectively it makes a fairly accurate guide to the diagnosis.

This complication, prior to the advent of laparotomy in its treatment, according to Osler, was the cause of one-third of all deaths from typhoid fever, and it occurs in two per cent of all cases of the disease. As is well known, it is produced by the extension of a typhoid ulcer completely through the walls of the intestine. It is found, usually, in the lower part of the ileum. Harte and Ashurst say that, in 73 per cent of all cases, it occurs within 12 inches of the ileocaecal valve, and in 190 cases collected from the literature, in only 4 was it situated more than three feet distant.

The accident occurs most commonly late in the disease, about the third or fourth week. It is thought to be more common in males, and to be rare in childhood, though Elsberg says that perforation is nearly as common between the ages of six and fifteen years as it is in adults; however, it is almost unknown in infancy. It seems to take place most frequently in the cases in which diarrhea, meteorism, and hemorrhage have been conspicuous symptoms, though this is not the invariable rule, for it does occur in the mild or ambulatory forms of the disease, and in the cases in which constipation has predominated.

The accident takes place most commonly without apparent cause, though it is believed by some to be almost invariably

preceded by some error in diet, or muscular exertion, such as coughing, straining at stool, or violent fits of vomiting.

Usually the patient is suddenly seized with acute agonizing pain referred to the lower abdomen or umbilicus, more commonly to the right of the median line, and below the level of the umbilicus, localized and spreading tenderness, and abdominal rigidity. A sudden change in pulse and temperature is noted, and nausea and vomiting may be present. The patient may have a chill, the respiration may be embarrassed, and he may possibly have syncopal attacks.

Unfortunately this frank announcement is not the invariable rule, and, in fact, it seems exceptional to meet with a case in which these symptoms are all present.

Pain, sudden and severe, on the whole seems to be the symptom most commonly and constantly present, though even this is sometimes absent. Haggard in collecting statistics of 300 operated cases says: "As a rule, pain is the first note of alarm; pain, sudden, severe, and colicky." This pain is usually located in the umbilical region, or below the level of the umbilicus, and frequently in the lower right quadrant of the abdomen. Sudden increase of pain already present is considered of equal importance.

J. C. Wilson: "The most important symptom is the sudden onset of severe abdominal pain."

Biggs: "Abdominal pain is the most important symptom, when present."

Butler: "Seventy-five per cent of all cases are announced by the sudden onset of acute abdominal pain, with rigidity and abdominal tenderness."

Finley: "The most constant and characteristic sign is sudden severe abdominal pain, persisting with increasing intensity."

Tenderness, localized and rapidly spreading, and usually manifested in the lower right quadrant of the abdomen, is considered by many of more importance than pain.

Biggs says: "Spreading tenderness is a little more to be relied upon than spreading pain."

Davis: "Still more to be relied upon than pain is fixed local tenderness."

Abdominal Rigidity.—This is an inval-

uable sign when present, and can usually be made out, if carefully sought for.

Munroe: "To get this sign rightly interpreted is the key-note to the diagnosis." Osler attaches much importance to it, and Biggs says: "Of all the early physical signs, muscular rigidity is the most important." Davis says: "A sign of great value, and I believe almost always present in the region of the perforation."

Shock.—Here again we find much difference of opinion; it is probably pronounced in the majority of cases at some time. J. B. Murphy says: "The prevalent idea that perforation is characterized by the combination of symptoms included under the term collapse is erroneous. At present the diagnosis is based upon the symptoms, nausea and vomiting, localized tenderness, and circumscribed flatness upon piano percussion, elevation of temperature, and hyperleucocytosis, in the order mentioned." He further says: "I have taught for years that there is very little depression immediately following perforation, and no collapse. Collapse is a late manifestation, and is the expression of the absorption of the products of infection."

But in consulting the literature we find expressions like the following very prevalent:

J. F. Erdman: "The principal question seems to be whether we should wait six or twelve hours for the subsidence of shock before operating."

J. E. Graham: "The operation should be performed as early as possible after the subsidence of shock."

Platt: "Defer the operation until primary shock, which usually lasts only a few hours, has passed away."

Butler, as quoted above, says that "75 per cent of all cases are announced by sudden acute abdominal pain, rigidity, rapid pulse, and a marked condition of collapse;" and Biggs says: "The sensations associated with shock are of considerable importance when present; their absence may be disregarded."

Temperature.—Many observers think that a sudden fall of temperature to normal or subnormal heralds the event, while as many more think that a sudden rise is characteristic. A rapid fall, incident to the shock, followed by a reactionary

rise as a result of the absorption of toxic material, and remaining high as a consequence of the peritonitis, is probably what really occurs. Differences in the time of observation would naturally lead to different conclusions were not the trouble viewed in this light. Davis says: "Apparently this (a fall in temperature) is not always present, though a subnormal temperature was noted in two of my cases. I am convinced that, if looked for at the proper time, a small reduction of temperature would be found in most cases. If the patient is not too ill there is also a feeling of anxiety, or of some impending calamity, often eloquently expressed in the countenance."

The safest rule to follow is a sudden change in temperature, out of proportion to the pulse. Dieulafoy regards this as an almost invariable sign, and Hall says: "A subnormal temperature, or a temperature disproportionate to the pulse, is our most important guide."

Pulse.—Biggs says: "The pulse is of great importance; it is, of course, an evidence of systemic shock. Almost always a rise in pulse-rate is noted, the onset is sudden, the quality altered, tension reduced, and it is readily compressible."

We must conclude that any change in the pulse-rate or quality, in typhoid fever, is of great importance, and especially so is a great disproportion in the pulse and temperature.

Vorsanger reports a case in which the only symptoms were a rise in pulse-rate and tympanites.

Respiration.—This function is interfered with in the beginning by pain and shock, later by the accumulation of pus and flatus, and at least by the exhaustion from prolonged toxemia.

Nausea and Vomiting.—J. B. Murphy places this symptom in second position, giving pain first. Munro attaches much importance to it, and Wilson gives it second place, while Biggs says that nausea and vomiting are so rare as to be of little value as a diagnostic sign. Davis says that this is more often the ushering in of general peritonitis than a sign of perforation.

Distention.—To determine that gas is free in the abdominal cavity, outside of the intestine, is proof positive that perforation has taken place. The sudden development of tympany, with absence of

liver dulness, caused as it is by flatus in the abdominal cavity, is a sign of great importance. But Davis says in this connection: "Absence of liver dulness is not a frequent phenomenon, and when it occurs may be due to other causes than perforation, as by the pushing up of the liver by the coils of distended intestines."

Biggs says that "distention and tympany are not of any importance as regards perforation *per se*, but are the evidence of the consequent peritonitis." Butler says: "If preëxisting tympany is great and the general condition bad, the occurrence of perforation may be very difficult to determine."

Syncope.—This symptom is rare, usually occurring in hemorrhagic cases, and is rather a symptom of severe hemorrhage than of perforation.

Chills and rigors are more frequent, and when present are very early manifestations.

The Skin.—The condition of the skin will depend largely upon the condition of shock, probably cold and wet in most cases.

Hyperleucocytosis becomes a valuable sign, when the blood count has been made at frequent intervals; it is consequently of most value in hospital practice, where facilities for frequent blood examinations are always present. Typhoid fever being a disease of low leucocytosis, the rise in leucocytes, incident to any peritoneal disturbance, makes the sign one of value in perforation.

Cabot says: "It is probable that slight local peritonitis always produces leucocytosis, unless the individual is already in a condition of profound general septicæmia; on the other hand a sudden (general) infection of the general peritoneum, with large quantities of excessively malignant organisms, may often result in complete absence of leucocytosis, or only a relatively slight rise, followed later by a fall."

Unless the diagnosis be much obscured, this sign will rarely be more than a matter of record. Hays says: "This much vaunted symptom is probably the least valuable of all;" and Harte: "The leucocyte count has proven of very little value at the time when most needed."

It may, however, prove a very valuable means of clinching an otherwise doubtful diagnosis.

Blood-pressure.—Dr. Crile brought

forward the fact that blood-pressure is very materially influenced by perforation. Measured with a Riva-Rocci instrument, the blood-pressure averages were taken in a series of cases of typhoid fever in the different stages of the disease, and were found to be as follows: Highest, 138 millimeters; lowest, 74 millimeters. Averages—First week, 115 millimeters; second week, 106 millimeters; third week, 102 millimeters; fourth week, 96 millimeters; fifth week, 98 millimeters; mean, 104 millimeters.

In twenty cases of perforation examined the blood-pressure was found to be: Highest, 208 millimeters; lowest, 156 millimeters.

In Lakeside Hospital, in a case of slow-forming perforation, the blood-pressure rose in two hours from 116 millimeters to 165 millimeters, and the pulse was but slightly increased.

This symptom is also one which is only available in cases in which facilities for blood-pressure examinations are at hand, and is of most value in cases in which the blood-pressure prior to perforation is known.

Hemorrhagic Cases.—In this condition the diagnosis becomes very difficult. All of the symptoms of hemorrhage, with the possible exception of air-hunger and excessive thirst, are included in the symptomatology of perforation. With a comatose patient, or one in whom hemorrhage has not been severe, these symptoms would not be conspicuous.

Hemorrhage takes place simultaneously with perforation many times, and the classical administration of opium for hemorrhage often robs the patient of his chance for early operation, by delaying the appearance of the very signs upon which most dependence is placed, viz., pain, tenderness, shock, and sense of impending calamity. The patient's sensibilities are obtunded more or less, and when he does return to complete consciousness the picture is one of general peritonitis and the condition hopeless. I recently had this matter brought home to me most forcibly—a patient dying in seven hours after the first appearance of pain, and four hours after the slightest rigidity could be made out. Thirty-six hours prior to the appearance of pain the patient received $\frac{1}{4}$ grain of morphine for intesti-

hemorrhage. The temptation to give the drug is great, for the patient is in an alarming condition, or more accurately speaking, in an alarmed condition, and as Dr. Hare aptly says, "there are few conditions met with by the general practitioner so far beyond his ability to be of any real assistance as intestinal hemorrhage in typhoid fever." Morphine tranquillizes the patient, steadies the heart, and stops peristalsis, and its use would be rational were we absolutely certain that perforation was not impending or had not really taken place. Who to-day is expert enough in diagnosis to determine the difference, and who can say with any degree of certainty that perforation is not impending in any given case, at least until after the time for the usefulness of morphine has passed away?

With regard to other drugs in the treatment of hemorrhage, our leading therapeutists to-day have very little faith in their use.

Hare says: "I do not see why a bleeding vessel in the intestine should be regarded differently from a bleeding vessel in a man's leg. No one to-day would think of applying a turpentine stupe, or giving turpentine internally, or adrenal gland, or similar styptic, by the mouth to control a hemorrhage from the anterior tibial artery. I fail to see how any of these remedies, even if possessed of styptic properties, when brought in contact with the bleeding spot, can be of use, when they have to pass through many feet of stomach and intestine."

We have this fact always before us, that death from intestinal hemorrhage is a rare occurrence.

Every case of intestinal hemorrhage should be treated as one of possible perforation until time has eliminated all doubt.

Contraindication to the use of morphine is certainly as great as it is in suspected appendicitis; certainly no one to-day would give a patient morphine in whom he suspected an acute inflammation of the appendix, and prior to his absolute diagnosis.

In a condition in which immediate operation is the patient's only hope, and with his chances inversely as to the amount of time elapsing between the accident and the operation, and when no symptom is constantly present, and with

our most competent diagnosticians disagreeing as to the relative value of the signs and symptoms when they do appear, it seems to me that one should be very careful indeed not to give a drug which might delay their appearance even for an hour, as that hour may cost the patient his life.

To recapitulate, given a case of typhoid fever, a sudden change of temperature and pulse, a sudden increase in abdominal symptoms, pain, meteorism, and abdominal rigidity in some local region of the abdomen, an immediate preparation for operation should be made.

A chill in the course of typhoid fever will call for not only a careful examination of the chest, but also of the abdomen.

Temperature and rigidity afford our greatest key to the differential diagnosis of hemorrhage and perforation. The usual happening in hemorrhage is a fall in temperature, with a gradual rise to not quite its former level; the temperature many times never again quite attains its former level. While in perforation an immediate fall is noted, followed by a rise to much above its former level, and this high temperature is maintained.

Intestinal hemorrhage is not to be too officiously treated, as the vast majority of cases will recover if left to nature. Assistance that cannot do harm, in the way of position of the patient, elevating the foot of the bed, withdrawal of nourishment and drink, allowing small pellets of ice, an ice poultice to the abdomen, etc., are indicated.

External heat may be called for, and stimulants given hypodermically; atropine will probably meet the indications most usually found, but strychnine and digitalis may be called for by a failing heart. Adrenal extract also appeals to one in this connection; intravenous injection of normal salt solution may also do good service in desperate cases—that is, where the patient is exsanguinated and gasping for breath.

Sterile gelatin solutions or calcium chloride may prove of service, and they are certainly the only rational remedies for internal hemorrhage at our command.

Every move should be deliberate and designed to allay the patient's fear. While pursuing such a course a careful watch

should be kept on the pulse, temperature, and abdominal symptoms, and the vast majority of cases of hemorrhage will recover, and at the same time perforation will usually be recognized in time for operative interference.

*CRYPTOGENETIC SEPTICOPYEMIA,
WITH A REPORT OF THREE
CASES.*

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AND

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Sepsis from the standpoint of the internal clinician is of comparatively recent origin. For a long time it has been recognized as an affection belonging almost exclusively to the surgeon and the obstetrician. Medical sepsis owes its recognition largely to the development of the science of bacteriology. Only with advance in the study of pathogenic organisms, their mode of entrance into the body, and their behavior, has it been possible to explain a certain symptom-complex which has been for the most part very puzzling to the practitioner. Thus, clinical pictures have been noted which bear a close resemblance to acute rheumatic fever, to miliary tuberculosis, to enteric fever, and to wound infection without the presence of a demonstrable lesion. The proof of Fehleisen that erysipelas is a streptococcus infection was probably one of the first links in the chain of medical sepsis. As clinical conditions were frequently noted which were closely akin to wound infections, in which, however, it was impossible to find an injury or wound, v. Leube in 1878 originated the term cryptogenetic septicopyemia. Septicopyemia was meant to cover a class of infections that bear resemblance to both septicemia and pyemia, in which symptoms of both are closely intermingled. In our present state of knowledge it is impossible to maintain the old conceptions of pure septicemia and pyemia. Gaspard in 1822 was probably the first to experiment with purulent and putrid infections. His results were confirmed a little later by Trousseau, Dupuy, Leuret, and in 1880 Pasteur demonstrated the common causes of septic infections.

That the conception of medical sepsis

is by no means uniform even yet is proven by the fact that in very few modern textbooks upon the practice of medicine is the subject considered at all from the standpoint of internal medicine. The works of Strümpell and Leube are exceptions to this statement.

The microorganisms commonly found in septicopyemia are streptococci, staphylococci, and pneumococci, less frequently colon bacilli, the proteus, and the pneumobacillus of Friedländer.

The affection which is probably most often confounded with septicopyemia or medical sepsis is acute articular rheumatism. It is not unusual for the careless practitioner to find a patient who complains of pain in or near a joint, in which there may be even some arthritic swelling and fever, possibly with pericarditis or endocarditis as complications, and to speedily make a diagnosis of acute rheumatic fever. When, however, antirheumatic drugs are administered, particularly the salicylates, and cinchonism occurs and the condition is not improved, the practitioner frequently reports a case of anomalous acute rheumatic fever. These are, however, particularly the symptoms which are found in medical sepsis, as is illustrated by the report of the following cases:

CASE I.—Montello S., aged nineteen, a negro, bootblack by trade, born in Washington, D. C., was admitted to the Philadelphia Hospital March 21, 1904.

Family history: Father died of dropsy; mother, brothers, and sisters are living and well.

Past medical history: Had whooping-cough, measles, and malaria in childhood; gonorrhea five years ago; articular rheumatism (?), which prevented his walking, three years ago. No history of syphilis. Patient used alcohol and tobacco moderately.

Present illness: Two weeks prior to admission pain and swelling were noticed in the left knee, followed by a similar condition in the right knee, and one week later he was treated for "rheumatism" in the wrists. At time of admission patient complained of tender, swollen ankles, slight cough, and painful respiration.

Physical examination: Fairly well nourished. Tongue fissured, coated, and flabby. Lungs resonant throughout. Apex beat in fifth interspace within the

left nipple line; heart action regular; a soft mitral systolic murmur, not transmitted. Abdomen negative except for tenderness in the splenic region. Tenderness upon pressure over the long bones. Ankles swollen and painful.

March 22 to 28. Patient had considerable pain in ankles. Heart murmur audible. Salicylate of sodium in large doses without effect.

March 29. Intense pain in left shoulder; dyspnea and pain on movement of body. Impaired resonance over base of left lung and numerous fine râles. Systolic murmur is inaudible. A pericardial to-and-fro friction sound can be felt and heard under the right border of the sternum below the third rib, above the fifth rib, and one inch outside the left nipple line. Spleen slightly enlarged upon palpation.

April 7. Intense pain beneath the right axilla; resonance somewhat impaired; friction remains, but is less distinct. Superficial bed-sores over buttocks and thighs. Patient complains of pain on movement. Area of heart dulness increased to right one-half inch.

April 15. Friction rub is maintained on deep pressure of the stethoscope. Mitral murmur present and faintly transmitted to the axilla.

April 22. Complains of pain and tenderness in the shoulders and arms. Heart action regular; systolic murmur very distinct. No pericardial friction. Impulse can be felt and seen in the fifth interspace within the nipple line, over an area between the fifth and sixth ribs within the nipple line.

May 1. General and local conditions have improved.

May 10. Out of bed. On full diet.

May 14. Impulse in the fifth and sixth interspaces, a little to the left of the parasternal line still forcible; has no thrill. Percussion in line of nipple transversely reaches to the right sternal border. Loud systolic murmur heard plainly in the axilla and transmitted to the angle of the left scapula. Slight accentuation of second aortic sound and a feeble hemic murmur in pulmonic area. Spleen not enlarged to percussion. Patient discharged in good general condition.

Examination of eye-ground April 15 by Dr. Wm. M. Sweet: Both irises react to light. Retinal veins full but not

tortuous. Arteries normal. No arterial or venous pulsation. Nerve heads oval. Free from astigmatism. Eye-grounds normal.

Urinalysis: March 25, specific gravity 1022; acid; pale yellow; albumin and sugar absent; no excess of uric acid salts noted. March 30, specific gravity 1020; acid; dark; albumin abundant; sugar negative; no casts found upon microscopic examination.

Sputum examination: The bacillus of Friedländer—the pneumobacillus (*mucosus capsulatus*)—present.

Hematological analysis: Erythrocytes average 4,342,500; hemoglobin, 75 per cent; leucocytes, 18,100. March 29, leucocytes number 26,800; highest amount of hemoglobin, 85 per cent. April 23, highest erythrocyte count 5,060,000.

The lowest leucocyte count was 14,000, April 23.

The differential counts averaged as follows: Polymorphonuclears, 66½ per cent; small lymphocytes, 19 per cent; large lymphocytes, 11.75 per cent; eosinophiles, 2½ per cent; basophiles, .25 per cent.

The diagnosis in this case, then, according to the clinical evidence, was sepsis due to the pneumobacillus of Friedländer.

About April 1 a blood culture was ordered. The report of the director of the Bacteriologic Laboratory of the Philadelphia Hospital, Dr. Randle C. Rosenberger, was as follows: "Two cubic centimeters of blood were withdrawn from the central vein of the arm after properly preparing and disinfecting the member. The blood was placed in a flask containing 200 cubic centimeters of bouillon and incubated at 37° C. Spreads from this culture at the end of twenty-four hours contained a bacillus 2 to 3 microns in length, encapsulated, and decolorizing by Gram's method of staining. Subcultures in various media (gelatin, blood serum, agar, and litmus milk) gave results which correspond to those obtained with pure cultures of the bacillus of Friedländer or the pneumobacillus."

As the pathogenic agent of a septic general infection the pneumobacillus, according to Lenhartz,¹ has been found only in seven cases. According to this same writer, in two of the cases an acute bronchopneumonia was the underlying

condition. In the remainder a purulent otitis was the primary cause.

In the case quoted by Lenhartz the diplococcus of Friedländer was also found in the blood. His case terminated lethally.

CASE II.—Nora C., aged thirty-five, negress, born in South Carolina, was admitted to the Philadelphia Hospital. May 6, 1904.

Family history: Mother died of heart disease; husband has a psoas abscess.

Past medical history: At fourteen she had enlarged glands of the neck; since then rheumatism, and frequent "colds" during the winter. Two weeks previous to admission patient had cough, night sweats, and occasionally expectorated blood. She lost in flesh and strength and had diarrhea. One week later she had high fever, headache, with increasing weakness.

Physical examination: A poorly nourished, weak woman. Tongue coated; pulse regular, but soft; chest greatly emaciated, expansion slight. Postcervical glands enlarged. Signs of consolidation at the right apex. Increased tactile and vocal fremitus above the second rib with dulness and prolonged expiration. Patient has cough and mucopurulent expectoration. Skin and hair are dry. Extremities wasted. Fingers show tendency to clubbing. Vaginal examination negative, except for slight tenderness in ovarian regions. Uterus is freely movable. Patient complains of weakness, loss of appetite, and fever.

May 12. The entire right leg markedly swollen, somewhat edematous; tender beneath the knee. Measurements are as follows: Right thigh, middle, 24 inches; left thigh, middle, 14½ inches; right leg, middle, 15 inches; left leg, middle, 10½ inches.

Eye-ground examination by Dr. Sweet: O.S., normal eye-ground and media; O.D., normal eye-ground and media. Disks clearly outlined.

June 6. General condition improved. Swelling and pain have decreased in the right leg. Tenderness over the right tibia and femur.

June 12. Patient sitting up in bed; feeling better. Measurements as follows: Right thigh, middle, 19 inches; left thigh, middle, 15 inches; right leg, middle, 14½ inches; left leg, middle, 11 inches.

June 20. Patient discharged from hospital.

Urinalysis: Acid; contains hyaline, dark granular, and epithelial cells and pus cells.

Blood count: Erythrocytes average 1,242,500; hemoglobin, 32 per cent; leucocytes, 14,430. Leucocytosis was 24,000, May 25.

Differential count was as follows: Polymorphonuclears, 82½ per cent; small lymphocytes, 13½ per cent; large lymphocytes, 4 per cent.

Sputum examination showed neither pneumococci nor tubercle bacilli.

Blood culture (report by Dr. Rosenberger): "Five cubic centimeters of blood were obtained from the central vein of the arm, inoculated into 200 cubic centimeters of bouillon, and placed in the incubator at 37° C. At the end of twenty-four hours spreads made from the culture contained oval cocci occurring in pairs and chains, encapsulated, and staining positively by Gram's method. Morphologically, biologically, and tinctorially the organism resembled the streptococcus lanceolatus or diplococcus of pneumonia."

CASE III.—I am indebted to Dr. P. Fusco for the history of the following case, the patient having been seen by one of us (J. L. S.) in consultation:

Donote F., aged twenty-four, a barber, in June, 1901, contracted gonorrhea, which was treated by a druggist for six weeks with strong injections. After cessation of the discharge the patient went to Atlantic City, where he took seven cold sea-baths. Upon his return home he noticed that his left wrist was somewhat swollen and painful, after which the same symptoms appeared in the right wrist, then successively in the left knee-joint and the right knee-joint, and then in some of the vertebral articulations. At the end of about seven months the pains in these joints had disappeared, remaining only in both coxofemoral joints. In the spring of 1902 the joint pains appeared in both ankles, and the tendo Achillis became particularly painful. The pains increased in severity. There was some precordial distress. This condition improved, so that in December, 1903, the patient was able to resume his occupation. In the spring of 1904 the pains recurred, this time accompanied

with fever, the temperature averaging between 101° and 102° F. The pulse and respiration at this time were increased. A blood culture by Dr. Rosenberger showed the Fränkel pneumococcus in pure culture in the blood.

Although the claim has been repeatedly made that the finding of specific organisms in the blood in cases of sepsis is rare, the three cases just reported gave a positive result upon the first trial. It has been suggested by some authors, particularly by v. Jürgensen (*Deutsche Klinik*, article on Sepsis), that this negative finding is due principally to two conditions: first, that blood is not taken in sufficient amounts for examination; and secondly, that all the various culture media should be employed in endeavoring to arrive at a conclusion.

The diagnosis of sepsis from a medical standpoint presents many difficulties, differing from surgical or gynecological sepsis in the important fact that no point of entrance for the organism can usually be determined, since wounds in the great majority of cases are absent. The question then arises, how does the bacterium gain entrance to the susceptible organism? And here several explanations have been offered. It has been pointed out by many investigators that the slightest wound of the skin, or of the mucous membrane, is sufficient for the microorganism to find its way into the body and bring about its characteristic changes. The tonsils are a very common point of entrance for the microorganism. It is readily understood that a predisposition, hence a susceptible condition of the body, must be present for the entrance of these pathogenic bacteria.

The diagnosis of cryptogenetic septicopyemia may also be difficult, owing to the great similarity existing between many of the symptoms of this affection and those of acute rheumatic fever, miliary tuberculosis, enteric fever, malarial infection, and uremia. Possibly, even in some cases in which the cutaneous phenomena are marked, the question of differential diagnosis between sepsis and the acute exanthemata may arise: where the septic infection is localized in the lungs, lobar and lobular pneumonia must be considered; and finally, where nervous symptoms are prominent, apoplexy offers some striking resemblances.

There are no pathognomonic symptoms of sepsis. The diagnosis must be made from the entire symptom-complex, but there is a certain group of symptoms which are found associated, and should always lead us to suspect sepsis as the underlying condition. These symptoms refer particularly to the relation of the pulse, temperature, and respiration to the affection localized in the joints, and especially in the long, tubular bones, to the condition of the blood, to the appearance of the eye-grounds and other ocular phenomena, and to the implication of some particular organ, as the heart. By most of the modern clinicians so-called malignant endocarditis is nothing else than a form of sepsis. This has led Jürgensen to divide the affection into the following groups:

Group I, *in which the constitutional phenomena predominate*. In this group the condition is characterized by rapid decomposition and death, as in any other severe infection.

Group II, *in which the phenomena on the part of the heart predominate*, the inflammation being rarely restricted to the myocardium, endocardium, or pericardium, but all of the structures being involved—a condition designated by the author as *pancarditis*.

Group III, *in which affections of the bones and joints predominate*. This is the form which was described as primary, infectious, osseous, and periosteal inflammation, or bone and joint typhoid. Metastatic articular inflammation is common in this form. This is also the group which is commonly confounded with acute articular rheumatism.

Group IV, *in which inflammatory conditions of the skin and subcutaneous connective tissue, of the muscles, of the mucous membrane, and of the serous membrane predominate*.

Group V, *in which inflammations of internal organs predominate*: brain, lungs, kidneys, spleen, liver, stomach and intestines.

It must be mentioned in the beginning that intermingling of these groups is very common, so that there are forms of sepsis which may present symptoms of all the groups.

The relation of the temperature to pulse and respiration, as has been remarked, is particularly important, the

main facts being these: that the respiration-rate and the pulse-rate are out of all proportion to the height of the temperature. The temperature curve itself shows no constancy. It may be subcontinuous, remittent, or intermittent, and the so-called "pump-handle" temperature of surgical sepsis is by no means invariable in the cryptogenetic form.

Of great importance in the diagnosis is the condition of the blood. Aside from the discovery of the particular micro-organism of the blood, the relation of the fluid and solid constituents to one another is of importance. It may be said in general that a secondary anemia is usually present, the hemoglobin for the most part is decreased, the erythrocytes being diminished. As a rule leucocytosis is present, this being for the most part a polymorphonuclear leucocytosis. The absence of leucocytosis by no means excludes sepsis, for, according to Grawitz,² even in some of the severest cases of supuration in internal organs leucocytosis is absent.

Hemorrhages from the tissues and from the internal organs are not of rare occurrence; and among these enterorrhagia is perhaps most common. This symptom is of value in the differential diagnosis between enteric fever and sepsis, for the typhoid form of sepsis with hemorrhages from the bowels may very closely simulate true enteric fever.

The examination of the eye-ground is of particular importance. This was accurately studied by Litten and J. Michel.³ Retinal hemorrhages are especially frequent; occasionally also unilateral and even bilateral panophthalmitis.

The condition of the bones and joints is significant. As a rule sepsis limits itself to one or more large joints, or the joint itself may remain unaffected, while the bones entering into the formation of the joint are particularly sensitive to pressure. The joint implication is of a more permanent character than in ordinary acute rheumatic fever, and the symmetry which is an almost constant accompaniment of the latter disease is lacking. The muscles are less frequently attacked. Nervous phenomena are common, such as insomnia, headache, vertigo, psychoses, occasionally convulsions and paralyzes of individual nerves. In the severe cases all

grades of coma may be observed, hence the similarity of some cases to cerebral apoplexy.

The urinary changes consist in the appearance of albumin, which, in the mild cases, is of a toxic character, but where the kidney is implicated true albuminuria with casts is noted.

The changes in the skin are truly protean in character; almost all varieties of eruption and inflammation have been observed at different times, from hyperemia to actual gangrene.

The spleen is commonly enlarged, but this is of no special value in the diagnosis or even in the differential diagnosis of sepsis, for, as is quite well known, this condition occurs in the great majority of infections. Of special diagnostic importance is an infarct in the spleen, which is not of infrequent occurrence in the course of sepsis, appearing particularly in the condition designated malignant endocarditis.

The affection most commonly confounded with sepsis is acute articular rheumatism, for, as has already been mentioned, implication of the joints, inflammation of serous membranes, cutaneous eruptions, and fever are common to both diseases. However, upon close study, the arthritic inflammation of sepsis is found to differ from that occurring in acute articular rheumatism in a few important particulars. In sepsis, while there may be swelling of the joint, the pain is usually not of the acute character which is characteristic of rheumatic pain; nor does the joint implication in sepsis show the fleeting character nor the symmetry which is so usual in acute rheumatic fever. Besides the joint in sepsis, the bones, particularly the long bones and the periosteum, are sensitive to pressure—a condition quite infrequent in acute rheumatic fever. Sweating is unusual in sepsis, at least to the extent in which it occurs in rheumatic fever. The deposition of urates in excess is frequent in rheumatic fever, but not at all characteristic of sepsis; and finally, in a questionable case the specific effect of the salicylates would be a great factor in determining the case as of rheumatic origin and not septic. It must be stated that there are some cases in which the differential diagnosis between these two affections

cannot be determined even by the findings at the autopsy. By some authors it is held that acute rheumatic fever is no other than an attenuated form of sepsis, and it appears that this view is constantly gaining ground.

The differential diagnosis between cryptogenetic septicopyemia and acute miliary tuberculosis is often difficult and sometimes even impossible. However, the signs of cyanosis, marked dyspnea, and involvement of the apices would be in favor of miliary tuberculosis. The finding of tubercle bacilli in the sputum, urine, or blood of the patient (which, however, is quite rare) would of course finally establish the diagnosis.

The differential diagnosis between sepsis and enteric fever at the first glance would appear quite easy, but experienced diagnosticians (Leube, Jürgensen) have published cases showing how they have mistaken one disease for the other.

The three cases quoted are quite remarkable in more than one respect. In the first, the finding of the bacillus of Friedländer in the blood and in the sputum of the patient during life stamps the case as almost unique. Very few instances have been recorded in which the bacillus mucosus capsulatus has been found as the pathogenic agent in sepsis, and so far as we know only in one other case, published by Lenhartz, was the bacillus found in the blood during the life of the patient. The pneumococcus has been found more frequently, but by no means constantly.

In regard to the treatment we may be brief. There is no specific treatment. All authors are unanimous upon the point that the patient must be kept absolutely at rest in bed; that the nutrition must be plentiful and of a character to sustain and increase strength. Alcohol is advised by some authorities and not employed by others. In general, it may be stated that tonic treatment meets the indications best, but even in favorable cases the disease may drag on for months and years, and then, when the patient has been thoroughly exhausted, emaciated to an extreme, death occurs. Even the cases with the mildest symptoms at the onset may terminate fatally, while the reverse is also true, that cases with severe and threatening symptoms sometimes terminate in recovery.

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THE TREATMENT OF PNEUMONIA.

By H. A. HARE, M.D.,

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Although our increasing knowledge concerning the relation of microorganisms to disease has impressed upon us the fact that a large number of maladies at one time considered non-infectious are really due to the entrance into the body of a specific germ, it is an undeniable fact that in no instance has our conception of the character of a malady been more materially altered than by the discovery of the micrococcus lanceolatus. While it is true that this discovery has not as yet materially improved our methods of combating the disease in the sense that it has provided us with an efficient antitoxin, or with information which indicates that any drug has a specific influence, it is also a fact that bacteriology has shown us, as in so many other instances, that the free administration of drugs to a patient suffering from pneumonia is, in many instances, an abuse, and may even diminish the chances of the patient's recovery. Further than this, the recognition that croupous pneumonia is due to a specific germ has shown us the necessity of varying our treatment in different cases, and has impressed upon the practitioner the important fact that in those cases which recover he must not give himself too much credit, and, conversely, that in those that die he must not chide himself, or become pessimistic as to the value of drugs.

The statistics which exist as to the mortality of this disease, and therefore those which exist as to the influence of treatment upon it, are, I believe, practically useless, because it is impossible to

bring together a large number of cases without jumbling instances in which the patient has suffered not only from croupous pneumonia, but from some subacute or chronic illness in which croupous pneumonia has simply been a terminal infection. As a very large majority of cases of croupous pneumonia are instances of terminal infection, or at least develop as complications of diseases already present, it is manifestly improper to report them with instances in which the disease is essentially primary and in which the patient has to combat but one infection, and that when his system is in a fair state of vital resistance. This fact, which holds true in regard to volumes of statistics, holds true also with the smaller number of cases which are frequently published by individual practitioners, who usually fail to carefully separate primary and secondary cases. Again, we are deprived of information concerning the benefit of different lines of treatment by the fact that croupous pneumonia is an exceedingly common disease in old age, so that it is, in one sense, a terminal infection in this condition, attacking the individual when advanced years have deprived him of the ability to withstand invasion by microorganisms. Statistics are also impaired by the fact that many cases of catarrhal pneumonia and acute pneumonic phthisis are reported as cases of croupous pneumonia, or simply as cases of "pneumonia," and it is probable that occasionally an infarction of the lung, or a pulmonary edema due to renal disease, enters the records as a case of pneumonia. I mention these facts because they indicate why we have no reliable information as to any plan of treatment, and because it impresses upon us the necessity of a careful differentiation of the cases as to whether they are primary or secondary, and further because they show that whether primary or secondary, they should be studied in decades of life and with complete information as to the condition of the patient at the time of onset. It is clear, therefore, that he who advocates any single plan of treatment for cases of croupous pneumonia is one who either lacks large experience, or is unable to derive accurate conclusions from such an experience. On the one hand we see a patient essentially feeble recover from the disease, and on

the other we see one essentially robust a victim of its onset. To suppose that any plan of treatment of a curative nature can be identical for either patient is manifestly erroneous—the more so when we recall that not only does vital resistance vary in each patient, but the virulence of the infecting microorganism is remarkably at variance in different instances, not only because of the vital resistance of the patient, but because it is well known that the pneumococcus is a germ which is not tenacious of life and it varies in its power to produce lethal effects.

If it is thought, however, from these preceding remarks that I believe that there are no remedies of value in croupous pneumonia, I have misled my readers. While firmly convinced that the disease cannot be cured in the sense that we cure syphilis with mercury, or malarial infection with quinine, I am also firmly convinced that the natural history of the disease may be much modified in a favorable manner by proper medical attention, and further, I am convinced that while these plans of treatment are to a large extent symptomatic, they nevertheless bring the ship through the storm in instances in which without such aid it would surely be wrecked.

In order that my conception of the results of therapeutic interference may be clearly defined, I think we may divide all cases of pneumonia into three classes:

First, those in which no treatment can be of any value, for though the lesion in the lung may be small, the system is, from the start, overwhelmed by a profound toxemia.

Second, those cases which can only recover if they receive intelligent aid and support at critical periods; and

Third, there is another class which not only get well without treatment, but not infrequently in spite of it; for all too frequently we find physicians driven by the patient's friends, and their own anxiety, to the administration of a large number of drugs with the idea that they may do good, without the important realization that anything which is powerful enough to do good may, under certain circumstances, be powerful enough to do harm. These are the cases which make us feel like saying "Give the patient a chance," and these are the cases which remind us of the extraordinary bacteriolytic power

of the blood, and the remarkable methods by which nature combats disease, and which should make us hesitate before we drop into the cog-wheels of such delicate machinery drugs which may, if wrongly given, disorder or break down this complex mechanism.

Perhaps, too, it may be proper to divide cases of pneumonia into those of small lesions and marked toxemia, and those with large lesions in the lungs and slight toxemia. We have all seen cases representing both of these types. In the toxemic class I am free to confess that therapeutic measures cannot promise much, unless it be that by maintaining activity of the kidneys and liver through the action of alkaline and hepatic stimulants we may eliminate or destroy poisons. Occasionally, too, these cases seem to be benefited by hypodermoclysis, if used in moderate quantity, and very occasionally good results may follow bleeding and hypodermoclysis, or intravenous injection of normal saline solution. Here again, however, the physician must carefully consider whether the blood has so far lost its bacteriolytic and other powers for good as to be less valuable to the patient than is salt solution.

The cardiac stimulants which seem to do most good in the toxemic cases are Hoffmann's anodyne or aromatic spirit of ammonia. Digitalis is, I think, rarely as valuable at such times.

While strychnine is useful, I am firmly convinced that it is much abused. It is, I think, a whip which should be used to pull the patient out of a critical period, and in the majority of instances the practice of administering it in full dose every three or four hours, day after day, deprives the physician of the whip which he may need, should a crisis arise, and increases nervous irritation.

Another drug which, for some reason, has become exceedingly popular with the profession in the treatment of pneumonia is nitroglycerin. Its use in many cases is a lamentable instance of the fact that many of us are willing to administer a drug because we have heard of its doing good in one case, and therefore imagine that it may do good in another. Originally employed in pneumonia in cases with high arterial tension for the purpose of relieving the heart of extra work, it has come to be employed with the idea

that it is a circulatory stimulant, which is an utterly erroneous conception of its physiological action, and I have frequently seen it given in cases in which the disorder of the heart depended upon vascular relaxation, which was exaggerated by the drug, rather than upon any influence exercised by the disease upon the heart. When the skin is hot and dry, the kidneys inactive, and the tension high, it or sweet spirit of nitre, which we are prone to forget has a similar physiological action because of its nitrous ether, are often valuable drugs. When the first sound of the heart lacks tone, and the pulmonary second sound is accentuated, it is my habit to administer 5 minims of a physiologically-tested tincture of digitalis every four or eight hours, and every two or four hours to give 10 minims of an equally active tincture of belladonna, the belladonna being given twice as often as the digitalis because it is fleeting in its effects, and the digitalis is prolonged in its influence. If the fever is high, it has been my experience that it is essential that an ice-bag should be placed over the heart if we are to get any value from the use of the digitalis. When the circulatory condition is urgent, and the pulse above 100 and gaseous, this treatment, aided by the administration of Hoffmann's anodyne by the mouth and camphorated oil hypodermically, will often pull a patient through when all other methods fail.

The value of oxygen by inhalation is debatable. Physiology would seem to teach us that it cannot do much good, yet almost every one resorts to it, and it undoubtedly gives comfort to the patient's friends, and sometimes to the patient himself.

There are many other points connected with the treatment of pneumonia in its varied manifestations which might be considered, if time permitted. The last one of importance to which I wish to refer is the use of morphine. In cases in which the kidneys are fairly active, and not diseased, and in which restlessness and delirium deprive the patient of rest and sleep, so that the nurse reports at the end of thirty-six hours that the patient has not closed his eyes, I believe that life is often saved by giving a hypodermic injection of morphine, for often several hours of quiet sleep will so refresh a patient that the whole complexion of the

case, to use a political phrase, will be different upon his awakening. Like strychnine, however, the morphine does best if it is carefully reserved for real emergencies. Strapping the chest, and the use of small doses of codeine, or heroin, or Dover's powder, being used for the relief of pain when the pleura is sufficiently involved to cause this symptom.

If this brief paper has seemed to be iconoclastic or nihilistic, it has failed to convey my real views as to the efficiency of treatment, and in conclusion I would like, as an explanation of my attitude, to quote two paragraphs which can be found on the fly-leaf of my book on "Therapeutics."

"When called to guide a patient through an illness the physician should be constantly a watchman, and a therapist only when necessity arises.

"A good physician is one who, having pure drugs, knows when to use them, how to use them, and, equally important, when not to use them."

TREATMENT OF CONJUNCTIVITIS.

FERGUS gives in the *British Medical Journal* of March 11, 1905, the following advice. He reminds us that formerly it was the custom to apply a compress and bandage in the treatment of almost every case of corneal ulceration. The bandage was supposed to do good first by keeping the eyes at rest, secondly by excluding cold, and thirdly by giving the ulcerated surface a certain amount of support. It is obvious on the slightest consideration that a bandage applied only to one eye will not keep it at rest, for, notwithstanding its application, the eyeball will move freely along with its fellow; all that the bandage does in this respect is to subject the eye in its movement to a greater amount of friction. A bandage may or may not keep out cold. While the author has never tested the difference of temperature between the skin under such a bandage and the same part of the skin without it, he believes one thing to be certain, and that is that it does retain septic secretions, and consequently it simply foment the organ with its own septic discharges. He admits that sometimes a bandage is of use in preventing an ulcer from becoming ectatic, but apart from this limited use

bandages seem to him to be quite inadmissible in the treatment of corneal ulceration. In most instances they are productive of harm. If the eye must be protected, then let it be by a shade or by a pair of smoked glasses. If dark glasses are to be used for the purpose of diminishing the amount of light which enters the eye, they should be smoked glass and not blue. These latter allow the actinic rays to pass freely, and hence, if it be desired to keep the chemically strong rays out of the eye, it is a mistake to tint the glass with blue or purple. At the same time, cobalt-blue glass, or the more recent amethyst glass, while allowing the light of short wavelength to pass, will largely exclude the heating portions of the spectrum. Smoked glass diminishes both sets of rays.

It would therefore seem that the former practice of fomenting eyes should be discarded. Presumably nothing more aids the development of microorganisms than a moist heat, and corneal ulcers have been made very much worse by the application of fomentations. So far as the author's practice is concerned, he employs them only for two purposes, one of which is to promote suppuration in the early stages of panophthalmitis, and the other to relieve the pain of rheumatic iritis.

THE EFFICIENCY OF COPPER FOIL IN DESTROYING TYPHOID AND COLON BACILLI IN WATER.

KRAEMER reports his studies on this subject as follows:

1. The intestinal bacteria, like colon and typhoid, are completely destroyed by placing clean copper foil in the water containing them.
2. The effects of colloidal copper and copper sulphate in the purification of drinking-water are in a quantitative sense much like those of filtration, only the organisms are completely destroyed.
3. Pending the introduction of the copper treatment of water on a large scale the householder may avail himself of a method for the purification of drinking-water by the use of strips of copper foil about $3\frac{1}{2}$ inches square to each quart, this being allowed to stand over night, or from six to eight hours, at the ordinary temperature, and then the water drawn off or the copper foil removed.

The Therapeutic Gazette

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Leading Articles.

THE VALUE OF NITROGLYCERIN.

It is not many years since we called attention in these columns to the mistaken idea, which seems to be quite general, that nitroglycerin is to be employed in the course of exhausting diseases and in the event of circulatory failure as a stimulant to the heart and blood-vessels. We pointed out at that time that there is nothing either in the clinical history or in the experimental records concerning this drug which would justify its use for this purpose, and we endeavored to emphasize the fact that the cases in which it really does good are those in which the reduction of arterial tension produced by its influence results in relieving the heart of an extra burden which it is finding difficult to carry.

Two papers have recently appeared which more or less directly bear upon the use of nitroglycerin for its circulatory effect. One of these is by Dr. Clifford Allbutt, Regius Professor of Physic in Cambridge University, and the other is by Dr. H. P. Loomis, of New York. Dr.

Allbutt, in discussing the prevention of apoplectic seizures, urges reliance upon proper rules of diet and modes of life rather than the employment of vascular sedatives, although he recognizes that under certain circumstances the additional use of drugs may be most advantageous. Dr. Loomis, on the other hand, contributes an article which is somewhat iconoclastic in its tendencies. He points out that in the dose of 1/100 of a grain three times a day, nitroglycerin in the majority of instances exercises very little real effect in reducing arterial tension. He also points out that these doses are not only too small to be advantageous, but that the action of the remedy is so fleeting that the effects produced by each individual dose last but a very short time. There can be no doubt that to some extent he is correct in these views, but on the other hand it is certain that many patients are benefited by these small doses given but three times a day, and that any increase in the size of the dose, or in the frequency of administration, produces headache or other evidence of the full physiological action of the drug.

Practical experience has convinced the writer of this editorial note that nitroglycerin is certainly one of the most valuable remedies which we possess, and therefore we are somewhat disappointed that Dr. Loomis should, so heartily, condemn it. He states in the course of his paper that he has come to rely upon chloral as a very much more efficient and satisfactory vascular sedative than nitroglycerin. No one who has employed chloral largely can have failed to have become impressed with the fact that it is a powerful and constant cardiovascular sedative, but it seems to us that its physiological action differs so materially in some respects from that of nitroglycerin that it cannot be considered, at least in many cases, as a satisfactory substitute. While it is true that it is an active vascular sedative in the sense that it reduces arterial tension, it is also a fact that such doses produce a simultaneous depression of the heart, and in the majority of cases in which nitroglycerin is indicated the condition is one of high arterial tension associated with more or less cardiac feebleness or fatigue. In other words, most persons who need nitroglycerin suffer not only from vascular tension, but

from myocardial change, and require something which would relieve the heart of the resistance which is offered to its action, and avoid any drug which will simultaneously depress this viscus. It is for this reason that physicians almost universally rely upon a combination of nitroglycerin and digitalis in treating many persons of advanced years when these patients present tense vessels and a tired heart. As we have just said, these conditions certainly contraindicate the use of chloral, which is well known to possess a distinct depressant influence upon the heart muscle. In those comparatively rare instances in which, in association with arterial spasm, there exists excessive cardiac hypertrophy we can readily understand that the action of chloral may be advantageous. But we are inclined to believe that such persons will be benefited more by aconite than by chloral, since its effects can be more readily controlled and immediately overcome by the proper use of stimulants, or by the withdrawal of the drug.

*THE IMPORTANCE OF PURE MILK IN
THE DIETETIC TREATMENT OF IN-
FECTIOUS DISEASES.*

During the summer months of 1904 we published an editorial note calling attention to a very valuable research made by Dr. Park, of New York, in regard to the bacterial content of that city's milk supply, and concerning its influence upon the health of children. It will be remembered that children who were fed upon raw, but pure, milk thrived better than those who were fed upon pasteurized milk. But the fact will also be recalled that children who were below par frequently became ill when milk was ingested which contained a superabundance of bacteria.

Within the last few years physicians have been more and more interested in the so-called modification of milk for infant feeding. The modification consists in changing the relative quantities of fat, proteid, and water, so that cow's milk may approximate human milk as nearly as possible, and so that it may be prepared, from month to month, to meet the needs of the growing child. If anything, too much attention has been paid to this

question, because in the vast majority of instances the digestion of the healthy child adjusts itself, to a large extent, to the food which is ingested. On the other hand, careful study of the bacterial content of milk has received but little attention, and many instances are met with in which milk, which has been modified chemically, has nevertheless produced disastrous results because of the large number of microorganisms which it carried into the body.

That this subject is of importance not only when children are treated but also when adults are depending, to a large extent, upon milk diet, has recently been emphasized in a valuable paper prepared by Dr. Edsall, of Philadelphia, who has shown that cases of typhoid fever vary as to the progress of their malady to a considerable extent, according to the bacterial content of the milk which they receive. In a number of instances in which typhoid patients suffered from excessive diarrhea, it was found that the milk administered to them contained an excessive number of bacteria, and it was also found that these intestinal disorders became modified as soon as milk devoid of such bacteria was administered. When we consider that the milk examined came from what was considered to be an excellent source, and had previously always been considered milk of the first quality, it becomes apparent that Dr. Edsall has called attention to a point of very great importance. His studies emphasize the fact that we should not consider intestinal disorders occurring in the course of typhoid fever as a natural manifestation of the disease, but determine in every instance that the food which is given is not responsible for those difficulties, which at times test our skill to the utmost, and seriously impair the patient's chances of recovery.

THE OPEN-AIR TREATMENT FOR TUBERCULOSIS.

The profession of medicine in particular, and the world in general, having learned that drugs perform but a feeble function in the cure of tuberculosis, and that good feeding and fresh air are our most powerful methods of limiting or eradicating the disease, medical men are,

of course, interested not only in the study of climates which are favorable to such patients, but still more in the measures which can be undertaken for the patient's benefit when he is forced by circumstances to remain at home. It is surprising how many tubercular patients who have been accustomed to sleeping in badly ventilated rooms, fearing lest they take cold if plenty of air is admitted to the bedroom, can speedily adjust themselves to the new conditions of free ventilation, and furthermore, rapidly show benefit from this method of treatment. In the early part of the last century the popularity of night-caps doubtless depended upon the fact that, owing to inadequate heating facilities, bedrooms became exceedingly cold in the early morning hours, and it was therefore necessary that some head-covering, other than the bedclothes, should be provided. In some instances it will be found that if tubercular patients sleep in a room with the windows wide open, they will not take cold if only they will wear a nightcap. It is also essential, in most instances at least, that they shall not lie in a direct draught, and therefore both the ingenuity of the patient and the physician may be exercised in devising means by which a free access of air may be obtained without undue exposure.

To those who are particularly interested in this matter, and who have patients under their care at the present time who require home methods of fresh-air treatment, we desire to call attention to the article in the *New York Medical Journal* of March 4, 1905, by Dr. Knopf and Dr. McLaughlin, of New York. Dr. Knopf is known far and wide for his earnest advocacy of measures designed to stamp out tuberculosis, and also for his interest in those measures which may be taken for the benefit of patients who are already infected. The article to which we refer contains a number of illustrations which will give practical points along these lines. One illustration shows a cheap but useful sleeping-shack, another a half-tent, for the cure in the open air; still another illustrates a window-tent for open-air treatment in the bedroom by means of which the patient's face and the upper part of the trunk are exposed to the outside air without it being possible for a draught to annoy him, and with the rest of the body exposed to the air of the room

so that undue chilling may not take place. The article also contains an illustration for a woollen helmet for sleeping out-of-doors in cold weather, and two other illustrations of pocket sputum-cups, in which the patient may deposit his sputum till it can be burned, or otherwise destroyed.

*PERMANGANATE OF POTASSIUM AS A
REMEDY IN SNAKE-BITES.*

About twenty or twenty-five years ago Dr. S. Weir Mitchell and Dr. Reichert published results from their investigations of snake venom which indicated that the permanganate of potassium may prove of very material value in acting as an antidote to this lethal substance. Since that time permanganate has been largely used all over the world as a remedy when men and animals were bitten by poisonous snakes, and not long since Sir Lauder Brunton devised an instrument by means of which the permanganate may be readily carried in the pocket, and immediately injected into, or into the neighborhood of, the wound. Our attention is once more called to this subject by an article in the *Indian Medical Gazette* of Calcutta for February, 1905, in which Captain Rodgers, of the Indian Medical Service, reports several cases treated by this method, the wounds being due to the bites of Russell's viper or the cobra. After making free crucial incisions of the bitten part, the wound was thoroughly flushed with a hot solution of permanganate of potassium, and then bandaged. Recovery occurred in each instance, although the cauterant action of the hot solution of permanganate of potassium delayed healing so long that the part was not well for about three weeks. Old subscribers of the THERAPEUTIC GAZETTE will probably remember that about twelve or thirteen years ago Dr. Amos Barber, of Cheyenne, Wyoming, contributed an article in which he reported cases in which excellent results had followed this method of treatment.

*SYPHILIS ACQUIRED IN PROFESSIONAL
WORK.*

It is, perhaps, only the syphilographer who appreciates that syphilis is comparatively often acquired by doctors and surgeons in the course of their routine

professional work, and usually not from necessity, but from sheer carelessness and a certain callousness as to the danger of this infection, hard to understand on the part of those who see what the disease can do at its worst. Probably not even the syphilographer realizes the frequency of these accidents, since doubtless a mild case is treated by the doctor who has acquired it without consultation, and from a perfectly comprehensible motive of concealment. It is probably because these mild cases are concealed that syphilis seems to exert its greatest virulence in doctors, as a rule only those who have resisted the ordinary treatment applying for help.

Montgomery (*Journal of Cutaneous Diseases*, April, 1905) records seven cases of what he calls "syphilis professionally acquired," two of which were inoculated while operating. In one of these cases the operation was that of circumcision upon a patient suffering from chancre of the foreskin. Although the surgeon cut himself on the wrist there is no record of his having taken the faintest precaution to avoid the syphilitic infection which in due course appeared. The second doctor wounded himself under the nail of the left ring-finger while removing a breast for what was supposed to be a cancer. Again there was no effort made to disinfect the wound, though in this case the presence of syphilis in the patient operated upon was not suspected. A third doctor was inoculated whilst attending a patient, apparently free from syphilis, during her confinement. The wound of entrance was caused by a parrot bite. There was in this case no swelling of the epitrochlear, lymphatic, or axillary glands, although later a typical roseola developed. The doctor noted that the child, although perfectly healthy at birth, subsequently developed symptoms of syphilis. The wound caused by the parrot bite had been carefully protected at the time of the delivery of the child by a covering of flexible collodion, which proved perfectly inefficacious. In the literature on this subject the majority of cases have been acquired during professional attendance on parturient women, and all who have had special experience in this line have been struck with the fact that doctors exhibiting extragenital chancres are often entirely unable to trace their

source. Such chancres sometimes develop on the lips, and are doubtless in many cases due to rubbing these surfaces with infected fingers. Fournier reports five chancres of the eye in medical men contracted from sputum ejected by the patient, though three of them washed their faces well after the accident. Taylor records two cases of syphilis acquired during the performance of a post-mortem examination—in one case eight hours after death, in the other case nine hours after death.

The value of papers such as that of Montgomery lies in the fact that it calls the attention of doctors to a danger which is so habitually escaped that it is usually neglected. The doctor not only for his own protection but for that of others should make it a rule to thoroughly wash his hands immediately after having handled every case; to practice cauterization of all wounds received during the course of operations or manipulations; to wear rubber gloves, or at least finger-cots, when such manipulations or operations are performed upon patients suffering from syphilis; and to avoid the spittle splashing of confidential talkers or the expectoration of those who are made to gag and cough by his examinations. The observance of these simple rules will probably prevent absolutely the acquisition of syphilis in the performance of professional work.

X-RAYS AND STERILITY.

Among the dangers to which the practitioner of medicine has been exposed since the beginning of the art, and which it may be said he has met not so much with bravery as with perfect heedlessness, there is a modern one which, though in itself not fatal, is more likely to excite his attention than the hundreds which hold for him death in its most distressing, lingering, and appalling form. Wide attention has been called to this modern danger by an article contributed by Tilden, Brown, and Osgood in the *American Journal of Surgery*, No. 9. These observers state that men by their presence in the x-ray atmosphere incidental to radiography for therapeutic use or testing of tubes may after a period of time be rendered sterile. This statement is base¹

upon the discovery of ten x -ray workers who were the subject of total azoöspemia, although none of them had suffered from any venereal disease or traumatism involving the genital tract, and none were conscious of functional derangement. Subsequent observations have increased the number of observed cases to eighteen, in all of whom either total azoöspemia or oligonecrospermia was demonstrated. Indeed, all of those who have been working extensively in x -rays for more than three years failed to show spermatozoa in their seminal fluid. A few engaged in the work for a shorter time, and particularly those who exercise care in avoiding direct exposure to the active tube, show varying stages of oligonecrospermia. Several cases subject to infrequent exposures showed normal spermatic fluid. In none of these cases was there noted even a transient erythema of the scrotum, nor was there any deterioration of sexual activity. Of the married men none have begotten children since they undertook x -ray work.

Attention to this result of x -rays was first excited by Albers-Schoenberg, who exposed five male rabbits and six guinea-pigs, and made fourteen matings with unexposed females for periods of ten days to six months, without a single litter being produced, although the male covered the female as frequently as the normal animal does. Autopsy on these animals showed spermatozoa in the seminal follicles or testes in but one. These animals were observed for four and a half months after cessation of exposure, but failed to impregnate. Bergonie and Tribondeau reported similar results in white rats.

Philipp reports a case treated for pruritus ani, the time of total exposure being 195 minutes. Seven months later examination of the seminal fluid showed complete azoöspemia. Philipp noted that after two exposures each for fifteen or twenty minutes for the cure of pruritus the number of spermatozoa was not diminished, but that they were all dead. This patient was so greatly relieved from his pruritus that he insisted upon two further treatments; after which the spermatozoa disappeared. Five months later the semen was found swarming with living spermatozoa.

Halberstaedter concludes from his experiments that the ovaries are markedly

more sensitive to the x -rays than the skin.

The rays seem to produce a degeneration of the specific epithelial cells, though human spermatozoa in seminal fluid exposed for thirty minutes present no demonstrable change in form or motility. As a means of prevention it is suggested that the operator of the Roentgen tube should work behind a screen impermeable to the rays and should expose himself only when absolutely necessary, and then only for an extremely short time.

In view of the recent legislative activity in regard to the prevention of the breeding of idiots, hopeless epileptics, and criminals, if the sterilizing effect of the x -ray be permanent, this might prove a useful means of ridding communities of children cursed from their birth and destined to become a burden and expense to the state; and at the same time might make legislation directed to this end feasible by satisfying those whose objection is based upon the performance of a more or less mutilating surgical operation.

Reports on Therapeutic Progress

THE TREATMENT OF ACUTE AND CHRONIC RHEUMATISM.

ILLMAN in *American Medicine* of March 11, 1905, states it is his belief that primarily the gastrointestinal tract is at fault in a large percentage of cases of acute and chronic articular rheumatism. He has recently adopted salol as a basis of treatment with most gratifying results.

As the result of an article "On the Advantages of Salol in the Treatment of Rheumatism," which he published in December, 1903, many practitioners questioned the benefits to be derived from salol, because of the comparatively small amount of salicylic acid the patient receives in the course of treatment; but it should be remembered that salol is not given primarily for the rheumatic condition, but rather for the cause of it—a fermenting catarrhal bowel.

How can any one expect any marked or prompt results from any salicylate, even in enormous doses, as many authors advise, if the drug is to be poured down into a stomach and bowel filled with great quantities of mucus, undigested food,

bile, and putrefying feces, as the very obnoxious fœtor of the breath in the patient with inflammatory rheumatism only too plainly indicates?

To give great doses of the salicylates at once in such cases is sure to defeat the very purpose for which they are given, by upsetting an already "sick stomach," and making the condition one is trying to alleviate. A purge is, therefore, the primary indication, and a clean alimentary tract is necessary before we can hope to get the best results from internal treatment. It is then the disinfectant and anti-fermentative effect of salol, after a brisk saline purge, makes this drug so effective in rheumatic treatment, especially since it also contains five parts of salicylic acid.

If the author were to name any one drug outside of the salicylates that is indicated in rheumatism, he should say magnesium sulphate, the results following its administration in slight rheumatic attacks often being as marked as though the salicylates had been given.

In the treatment of chronic rheumatism we are confronted with the problem as to the propriety of the long-continued use of the salicylates. Relapses are considered to be more frequent than under any other form of treatment. There is a general average of 26 per cent under this method as against 16 per cent under the alkaline and other methods. Relapses, however, appear to occur less frequently in cases which yield to salicylates in the first few days than in those which take longer.

The salicylates neither control nor prevent any inflammation of the endocardium, or pleura, and with the exception of salol fail to have any marked effect upon the pyrexia. They do not prevent the condition from involving other organs even after the symptoms have subsided, hence they do not protect the heart; and no less an authority than Flint believes that rheumatic endocarditis and pericarditis are more frequent since the introduction of the salicylate treatment; Burwinkel also does not regard salicylic medication as an advance in the treatment of articular rheumatism. Excess of the salicylates is likely to produce unpleasant toxic effects, such as nausea, vomiting, abdominal pain, frontal headache, tinnitus aurium, and other unpleasant symptoms, which very

often make the remedy worse than the disease. Therefore, the author avoids the use of excessive doses of the salicylates, only giving them, and then not over a very extended period, after the subsidence of the symptoms, depending upon baths, diet, hygienic and saline treatment to bring about a complete recovery.

The serum treatment seems to be reasonably successful. Schmidt tried Menzer's antistreptococcic serum; in fifteen cases, six were unmistakably improved, and in five cases no improvement was apparent: The more pronounced the reaction the better the results observed. Schaefer, in six cases of articular rheumatism in adults and children, tried Menzer's serum with the best results; the attacks were shortened and the health afterward was unusually good. Stengel has also noted decided improvement from the use of antistreptococcic serum in three cases of protracted recurring rheumatism. In treating acute and chronic rheumatism the writer regards the patient in much the same light as the surgeon does an infected cavity, the all important necessity being drainage in both instances. Whether the drainage is for the purpose of eliminating a germ or its toxic product or the toxic product of a faulty metabolism, the economy demands an elimination of the detrimental substance before results from medication may be expected. We should then institute a system of drainage, especially from the skin, kidneys, and bowel. We assist nature in her effort of elimination from the skin by producing profuse sweats with diaphoretics and hot local or general applications, and draining the kidneys with mild diuretics.

The use of the static wave current should also be considered as a means to assist the patient in the elimination of urea. The effect of this treatment has been carefully observed by Boardman Reed, who reports one case in particular, in which the urine before static wave current treatment contained 0.8 per cent of urea, and after a fifteen-minute treatment with the static wave current contained 2 per cent of urea.

Haig's idea that uric acid is the cause of "all evil" (so to speak), and of rheumatism, has long been disproved by Billings and other leading clinicians. On the other hand, there is no disputing the fact that the increased elimination of urea is pro-

ductive of good results in treating rheumatism.

Drainage from the bowel is obtained by the use of salines, especially magnesium sulphate, in small or large doses, as necessary. Burwinkel even prefers to treat the condition by venesection, withdrawing 150 to 300 cubic centimeters of blood at a time. This is drainage in the full appreciation of the term, but such a procedure is not to be considered in the treatment of primary mild attacks.

In chronic rheumatism, massage, both local and general, exercise, faradism, and baths are very beneficial. The patient should be cautioned especially as to diet, each case being a law unto itself in this respect; but meats, condiments, fruits, especially too green or too ripe, alcoholic and cold drinks are to be reduced in quantity or prohibited, as is also any other particular article of food which acts as a gastrointestinal irritant in a given case.

CHOICE OF A GENERAL ANESTHETIC AND SELECTION OF METHOD OF ADMINISTRATION.

A paper on this well worn theme is contributed to the *Medical Record* of February 11, 1905, by PEDERSEN, who thinks that the considerations which cover the selection of a general anesthetic for a particular patient comprise the following heads:

1. *General State of the Patient.*—Good health and absence of visceral diseases do not guarantee a featureless anesthesia, as Hewitt says, although most operators think otherwise erroneously. Feeble health usually means perfect susceptibility, and hence in these persons the cause of trouble is much less and the anesthesia far more apt to be featureless.

2. *Sex and Age.*—Females are better subjects than males because they are less intemperate, more susceptible to drugs, and on the whole more courageous in sickness and more willing to do what is required of them by the anesthetist. The year of age counts for less than does the disease present at different periods of life in influencing anesthesia. Infants and young children may take ether drop by drop. Hewitt reports the case of a six-day-old child who took ether in this manner perfectly for a rather protracted operation. For infants C. E.-ether or A. C.-

ether is a very good sequence. During the stage of crying and struggling chloroform should be given very deliberately lest the deep inspirations lead to overdose. All children bear asphyxia poorly, and hence react unfavorably to nitrous oxide gas.

In advanced life, if the lungs and heart are free of progressing disease, the choice is much the same. As a rule, nitrous oxide-ether is not the best sequence for these patients. C. E.-ether is in the minds of many a preferable combination; the writer, however, has never experienced any difficulty with the gas-ether technique.

3. *Temperament.*—Naturally the placid are the best, while the nervous and hysterical are the least desirable subjects. Anesthesia of the cornea in the hysterical may deceive the anesthetist as to the degree of narcosis present.

4. *Habits.*—Alcoholism is the most important, and invariably renders the subject combative and resistant to the drug. Hewitt states that he once gave 5½ ounces of chloroform in seventy-five minutes to a 56-year-old man, whereas the majority of subjects require an ounce or less per hour. Nitrous oxide will not anesthetize an alcoholic, but may destroy pain. Morphinism usually makes less anesthetic necessary, but in marked cases may reverse this effect and produce a long train of undesirable nervous phenomena. The tobacco habit is an important one, because it renders the upper air-passages chronically inflamed. Such subjects always have loud stertor and much bronchorrhea. Previous anesthetics are important only with regard to the condition of the patient at the time. If the subject is anemic they play no part; if robust, they may be followed by great resistance.

5. *General Physique.*—The poor subjects are those of muscular strength, of obesity, and of plethora, whereas the inactive and anemic subjects are quite the contrary.

6. *Respiratory System.*—Hewitt states that in lost consciousness all preëxisting defects are greatly increased, which certainly coincides with the experience of the writer during the past six years. Firm and closely fitting teeth may be a very great bar to easy anesthesia; such patients require a small mouth-prop, as a rule, no matter whether ether or chloroform is used.

Subjects without teeth may suck their lips back and forth in a valve-like action which obstructs the air-way to a remarkable degree. Fixity of the lower jaw always makes the anesthesia difficult, whether the fixity is due to position or disease. Growth of the tongue, soft palate, and tonsils may become turgescient and excite dyspnea. Decrease in the supply of oxygen usually adds to their size. Growths of the neck, thyroid gland, etc., usually obstruct respiration. All these conditions rather indicate the chloroform-ether mixture, or ether drop by drop.

Diseases of the larynx and trachea require chloroform or chloroform mixed with ether. Bronchorrhea, pulmonary and pleural diseases, if active and progressive, indicate chloroform or chloroform-ether; if stationary, ether may be used cautiously. Recent pulmonary disease indicates chloroform or C. E.-ether sequence. The ether should be given most carefully and preferably drop by drop, so as to give exactly the required quantity and no more, with a bag cone, so as to warm the fumes as much as possible. When respiration and circulation are interfered with by such conditions as ascites and empyema, great care is necessary. The writer's opinion is that C. E.-ether or chloroform-ether is the best usually. Ether should always be at hand if chloroform is being used, so that if the evacuation of the fluid changes the condition of the circulation, it may be employed as a stimulant. In empyema, if the lung itself is no longer diseased, ether alone may be used. In both ascites and empyema much danger will be avoided if the fluid is aspirated a few hours before anesthetization.

7. *Circulation*.—Slight or compensated disease of the valves of the heart accepts ether well; cases which require cardiac sedatives will probably do better under chloroform or C. E. Cases which require stimulation will usually react better under ether alone than under chloroform in any way. When one is in doubt as to the exact condition of the heart, it is probably safer to use ether than chloroform. In the advanced cardiac cases, unless the patient must sit up to breathe, it is highly advisable to have him in the recumbent or semirecumbent posture, to give him plenty of air, to provide utmost freedom for the respiratory function. The cyanosis so

often present with gas may overwork the right heart; therefore the nitrous-oxide-ether sequence is not to be recommended. Orthopnea always demands ether and absolutely contraindicates chloroform.

Cases with intermittent pulse usually improve under ether and often under C. E., but commonly require stimulation after withdrawal of the anesthetic. Myocarditic and fatty hearts require great caution and had best receive straight ether drop by drop. Atheroma, if marked, usually indicates C. E., and especially if myocarditis is present. Aneurism suggests C. E. with deliberation and caution, especially during the stage of struggling. The same dictum applies to venous thrombosis. Exhaustion and collapse require ether with care and precision. It is best to restore these patients by a moderate saline infusion before giving any anesthetic. Intestinal obstruction demands a light degree of anesthetic because shock is present, and great caution as to vomiting, of which there is much danger. It is commonly not accompanied by esophageal movements. The vomiting is usually more truly a regurgitation, for which the anesthetist must constantly be on guard. Many recommend that a pillow be put under one shoulder, the mouth-gag into place, and the sponge forceps at hand; that the gag be turned to the opposite side so as to permit the regurgitated fluid to collect in the lateral regions of the throat and mouth, wherefrom it may be wiped. The writer prefers Rose's position with the head extended over the edge of the table, so that the vomitus collects in the vault of the pharynx, whence it may be readily removed, while at the same time the respiratory current passes through the mouth held open by a gag while the tongue is pulled forward.

CARDIAC FAILURE IN PLAGUE AND ITS TREATMENT.

In the *Indian Medical Gazette* for April, 1905, CHOKSY, of Bombay, writes on this subject. He states that the means within our reach fall naturally into two main groups. One embraces the volatile, easily eliminated, and therefore evanescent stimulants like alcohol, ammonia, ether, camphor, musk, etc. The other comprises drugs of recognized value, known for

their action on the cardio-neuro-vascular apparatus, acting either on the muscular or nervous system, or on both in varying degrees. It includes atropine, caffeine, convallaria, digitalis, sparteine, strophanthus, strychnine, the suprarenal substance having as its active principle adrenalin, and various other less known drugs.

Of those belonging to the first group, alcohol still holds with many the premier place as the stimulant *par excellence*. It possesses some undoubted advantages, such as rapidity of action, etc., but its exhibition requires frequent repetition, and it is not well tolerated by many patients. The stomach more often than not rejects it, and such rejection is a warning that should not be lightly disregarded. Although its immediate effects on the circulation are well marked, they are of transient duration, and frequently repetition fails to keep up the circulation. Moreover, it does not quiet the delirium of plague, a complication that is so constant and so depressing to the patient, endangering his life. Any line of treatment that places its sole reliance on large and frequent doses of alcohol as a cardiac stimulant during day and night, combined with sedatives to control the delirium, is far from satisfactory. Under the influence of alcohol the delirium becomes more violent and less easily controlled, and as the system does not readily respond to the sedatives administered, serious depression results, and the patient sinks into the condition of coma-vigil. The eyes are staring and wide open, with either a fierce or vacant look; of sleep or mental rest there are no signs, and the powers appear to be at a low ebb.

In spite of all these manifest disadvantages, it cannot be denied that alcohol has had a fair and extensive trial in the treatment of plague, and the verdict on the whole must be pronounced unfavorable to its routine use. And the more so now that we know of other cardiac remedies of great stability, which, whilst possessing all the good qualities, and even better than those of alcohol, have none of its disadvantages. For the above reasons, and after prolonged trial in various doses, small, medium, and large, during six epidemics, it has had to be ultimately abandoned as the routine treatment in plague at the Arthur Road and Maratha Hospitals. If it

is at all used, it comes in well as an occasional restorative, or in those cases where patients are addicted to it, or during convalescence. The rum and brandy bill has thus been greatly curtailed, with mutual benefit to the patient and the municipal treasury.

Ammonia, ether, camphor, musk, etc., have also been largely used, but they, too, are of temporary benefit, and cannot be assigned a prominent place in plague treatment. Ammonia and ether do well as occasional stimulants; but the latter when exhibited by the mouth upsets the stomach, and if used subcutaneously gives rise to abscesses and necrosis. Camphor has been largely extolled, especially in Germany and Austria, as a cardiac stimulant in typhoid and typhus fevers. Dr. Curschmann, of Leipzig, speaks highly of it.

Camphor has not been used with frequency in plague, but whenever applied it has not shown the same results as in typhoid. The difference in the essential nature of the two diseases, and the rapid and more extensive degenerative changes in the heart muscle in plague as contrasted with the slower process in typhoid, might well account for this difference. As a temporary stimulant, however, it is undoubtedly useful, but whether its continuous use day after day, and with such frequency, would be entirely harmless has yet to be determined.

Turning now to the second group, there are many valuable drugs of established as well as reputed value. It is beside the purpose of this paper to recount all the observations at the Arthur Road and Maratha Hospitals, extending over eight epidemics of plague and comprising over ten thousand cases, that have come under the personal observation of the writer. Suffice it to state that various cardiac remedies have been used singly and in different combinations throughout the period, both with and without alcohol. Overstimulation was avoided for the reasons stated in the earlier part of this paper.

Of the drugs comprised in the second group, all have been used with varying success by the mouth, as well as subcutaneously. To the Arthur Road Hospital during the first five epidemics, and subsequently to the Maratha Hospital, must be ascribed the credit of very exhaustive

and painstaking observations in the use of various cardiac remedies. The former institution was the pioneer in introducing the extensive use of hypodermic medication in the treatment of plague, and which has now been so largely adopted by the profession. Atropine, caffeine, convallaria, digitalis (powder, infusion, tincture), sparteine, strophanthus (tincture and strophanthine), strychnine, and the suprarenal substance, Parke, Davis & Co.'s adrenalin chloride solution, have all been extensively tested. After a long series of observations the following combination of cardiac remedies—called the "stimulant injection"—was found to be the safest and most efficacious, not only in stimulating the heart, but also in keeping up sustained action until complete recovery:

℞ Sol. caffein. sod. salicyl., min. x;
Sparteïn. sulph., gr. ss;
Liquor strychninæ, min. iij;
Liquor atropinæ (B. P.), min. ss;
Spt. vini gallici, q. s. ad min. xx.

Misce ft. injectio hypodermica.

This injection was used in doses of 20 minims, repeated every six, four, or three hours, according to the character of the pulse. Whenever the pulse did not sufficiently respond after three hourly injections, it was noticed that if used with greater frequency it had no better effect. Owing to the well-known tendency of caffeine to produce and keep up wakefulness, it was at first omitted during the night, and subsequently it was found that, in the presence of other drugs, it could be dispensed with altogether. For the last eighteen months, therefore, the formula in use has been as follows:

℞ Sparteïn. sulph., gr. ss;
Liquor strychninæ, min. iij;
Liquor atropinæ (B. P.), min. ss;
Spt. vini gallici, q. s. ad min. xx.

It has been the experience of many observers that a certain amount of tolerance to powerful drugs becomes established by continuous usage, and that the effects observed at the beginning are not kept up to the same pitch later on. This holds good to a certain extent with cardiac remedies in plague also, but other factors besides tolerance complicate matters. It is probable that the slowly advancing cardiac degeneration, as also lessened absorption from the stomach or the subcu-

taneous cellular tissue, play a by no means unimportant rôle in inhibiting their action. Under such circumstances the danger of pushing such a combination becomes sufficiently obvious; and so also the need of gradually decreasing its frequency and subsequently stopping it, so soon as the heart is found to recover itself. Realizing therefore the limitations of this combination and with the view of supplementing its action, a solution of camphor was introduced. It was used about two to four times a day alternately with the above. This line of treatment, with the almost total exclusion of alcohol, was carried out during a period of sixteen months, in the course of which 1749 patients were treated at the Maratha Hospital with a mortality rate of 77.49 per cent, which was lower than the average of the previous four years by about 5 per cent.

So far the results were not altogether unsatisfactory, having regard to the virulence of the local epidemics, as also to the class of patients treated and their unusually late—in the majority of cases too late—admission into the hospital. But they did not go far enough, and it appeared that an ideal cardiac stimulant that would uniformly sustain the heart's action and carry the patient through was still a desideratum. It was under these circumstances that the suprarenal substance recently introduced to the notice of the profession as a vasoconstrictor and hemostatic, and subsequently alleged to possess a specific action on the heart also, claimed notice. Merck's extractum suprarenale hemostaticum was used tentatively over four years ago, but the difficulty of manipulation and frequent large subcutaneous injections of its solution militated against its routine use. Then Messrs. Parke, Davis & Co., of Detroit, brought to the writer's notice the alkaloid adrenalin, discovered in their laboratory by Takamine, in the form of 1 per 1000 solution of its chloride. It was claimed to be non-poisonous, non-cumulative, non-irritating, and stable, to possess the property of raising the blood-pressure, and of exerting the same effects on the heart as digitalis. Its use in plague therefore readily suggested itself, and with this object a series of observations were commenced at the Maratha Hospital during the last epidemic, and have been continued up to the pres-

ent time. The solution was used by the mouth, and also subcutaneously mixed with an equal proportion of normal salt solution. Some patients were treated by adrenalin alone; but the largest number of observations comprised its use as a supplement to the stimulant injection, without caffeine, described above. The latter procedure was necessitated by the shortness of the local stock, and the consequent contingency of the abrupt stoppage of our observations. The stimulant injection was administered hypodermically every three, four, or six hours, according to the gravity of the case, and the adrenalin solution administered by the mouth in dose of $2\frac{1}{2}$ minims every two hours. A few cases received as much as ten minims hypodermically. A marked change for the better was soon apparent in the condition of the patients after they were put under adrenalin. The pulse tension was increased and well kept up, and the influence on its frequency and irregularity was noticeable. In fact a good supplement was found in adrenalin capable of acting and coördinating with the stimulant injection.

*THE DIGESTION OF CASEINS, AND ITS
RELATION TO CERTAIN PROBLEMS
IN INFANT FEEDING.*

In a valuable paper contributed to the *Medical Record* of March 4, 1905, SOUTHWORTH points out that the use of alkaline antacids, lime-water, and bicarbonate of soda, which were introduced into food mixtures for young children in order to make acid cow's milk correspond to a supposed alkaline breast milk, was based upon a fallacious theory, since the use of a more accurate indicator, phenolphthalein, has now shown breast milk also to be faintly acid. He has also shown that the use of 5-per-cent lime-water and one grain sodium bicarbonate to the ounce, which is one ounce of lime-water or 20 grains bicarbonate to every 20 ounces of pure milk or food mixture, as advised by certain authorities, was an erroneous application of the theory to practice, inasmuch as the actual proportion of the alkali to the quantity of milk varies, of course, with the number of ounces of milk in the 20-ounce mixture. This results in a high alkalization of the small amount of milk used in the mixtures for

young infants, and a gradually decreasing alkalization as the mixtures are made stronger by the addition of larger quantities of milk. The true explanation of the utility of alkaline antacids must therefore be sought in some other direction, and is to be found, aside from certain individual effects which each alkali produces upon the milk and in the neutralization of any lactic acid formed in the milk after it is drawn, in the fact that in the presence of an alkaline reaction the rennet ferment is retarded or inhibited or delayed, allowing the escape into the intestine of part, at least, of the still fluid milk. This tends to divide the labor of digestion, to a degree depending upon the amount and kind of alkaline antacid used, between the stomach and intestine, and may thus avert the overtaxing of the stomach with subsequent disastrous effects upon the entire gastrointestinal canal.

Peptonization of milk is a well recognized measure for increasing the digestibility of its casein, but it is too frequently employed without knowledge of the principles involved. The term "peptonization" itself is perhaps an unfortunate one, since its root suggests to many digestion by pepsin, which can only take place in an acid medium and alone represents typical gastric digestion. This view is still encountered with great frequency among all classes. "Pancreatization" and "pancreatized milk" would have been better terms, since the preparation used for this purpose contains 5 grains of extractum pancreati and 15 grains sodium bicarbonate. The process is therefore analogous to an intestinal digestion in an alkaline medium. Upon the length of time during which the ferment is allowed to work upon the milk before its activity is checked by heating or cooling depends the amount of casein which is changed into a non-coagulable form, but whether much or little is transformed the alkalinity caused by the bicarbonate of soda, especially if the food has been subsequently heated, restrains the rennet and acids of the stomach to a larger or smaller degree from playing their usual part in the digestion of the remainder, and so prevents to any considerable extent the formation with the unaltered casein of tough acid paracasein curds. In short, gastric digestion is more or less cut out, and the intestine receives material

upon which its own work of digestion is already more or less advanced.

With this explanation in mind, no practitioner will repeat the not very infrequent error of attempting to produce some sort of "peptonization" by adding pepsin to the child's bottle, for since commercial pepsin invariably contains the rennet ferment the result is to cause a clotting of the calcium casein in the form of calcium paracasein, which is really a precipitate of "junket" or "curds and whey."

THE TREATMENT OF BRIGHT'S DISEASE.

In the course of an article in the *Clinical Journal* of February 22, 1905, BRADFORD states that the diet of a person suffering from chronic Bright's disease should, of course, be constructed on the principle of diminishing as far as possible the work of the kidney, always bearing in mind that whatever we do considerable quantities of urea and of salts must be excreted, and that by diminishing the diet too much we only lead to the same results as those seen in starvation, namely, that the patient has to draw on the tissues of the body. A broad distinction ought to be made between the cases in which, owing to the presence of the accompaniments of renal disease or owing to the severity of the renal lesion, the patient is so ill that he has to be confined to bed, and the class of case in which, notwithstanding the presence of a renal lesion, possibly also severe, the general condition is such that the patient is able to be up and about or even engaged in his avocation. If dropsy or uremia be present, in however mild a form, it is obvious that the patient must be put to bed and kept on a low diet of milk only, though doubtless it may be advisable to dilute this.

Our difficulties, however, do not arise with cases of this description, but rather with those in which dropsy and uremia are absent, the cardiovascular changes and the urinary changes marked, and the general condition of the patient such that he feels moderately well and probably able to be up and about and engaged in his work. Such cases should not be restricted to a milk diet, however abundant, because of purely theoretical considerations as regards the influence of this on albuminuria. They should be given a diet containing a

moderate amount of proteid matter, and in the opinion of the author, in selecting the proteid matter, we should be guided mainly by consideration as to its digestibility rather than by theoretical considerations or even practical observations on its effects on albuminuria. Thus it is very common to order such persons moderately liberal quantities of white fish. This can only be justified from the point of view of the digestibility of the fish, since fish is relatively rich in nitrogenous extractives. If such a patient is able to keep up his strength and general nutrition on such a diet, well and good; but most persons fail to do so. Again, it would seem that there is no special virtue to be attached to what is called white meat, except that chicken, doubtless, is more easily digestible than red meat. The author's point is that such articles of diet as so-called white meat and fish have no special virtues as regards diminishing the work of the kidney; such virtues as they possess arise from the fact, as stated above, that they are relatively easily digestible and suitable articles of diet for most invalids or convalescents. Many observers in this country have shown that a more liberal diet, including the ordinary varieties of meat commonly eaten, may be used with great advantage in chronic Bright's disease, provided such conditions as dropsy, uremia, etc., are absent, and provided, of course, that they are not taken in excessive amount. Many a patient with chronic Bright's disease will do better on a diet of mutton chops than on one of milk, although it is possible that on such a diet the daily loss of albumen may be somewhat increased.

In the author's opinion the proteid food should be limited in quantity and careful attention paid to its digestibility. It is probably advisable to forbid twice-cooked meats, such as smoked ham, tongue, etc., simply on the ground that the latter are necessarily far richer in proteid matter than ordinary butcher's meat. There can also be no doubt that elaborately cooked food, and tainted food, may be extremely dangerous, and it is possible even that uremia, or at any rate grave toxic phenomena, may be brought about by indiscretions in this respect. There can also be no question that meat soups and meat extracts of all kinds are harmful, and the author is inclined to think that all stimu-

lants are harmful, and he has been unable to recognize any special virtues in the gin that is so frequently ordered. It may be advisable, where dropsy is present, to limit as far as is practicable the ingestion of water and of salts, as it would certainly seem that both may lead to an increase in the dropsy, and meat extracts may be harmful, not only from the fact that they are rich in nitrogenous extractives, but also owing to the abundance of salts present.

ERYSIPELAS TREATED BY INJECTIONS OF ANTISTREPTOCOCCUS SERUM.

In the *Medical Record* of March 4, 1905, AYER reaches the following conclusions:

1. That the administration of anti-streptococcus serum shortens considerably the course of an uncomplicated attack of erysipelas.
2. That it tends to inhibit extension of the disease.
3. That it has a strikingly beneficial effect upon the general condition of the patient, reducing the temperature, pain, and discomfort incidental to the disease.
4. That it rapidly reduces the pathological leucocytosis.
5. That it prevents or suppresses febrile albuminuria.
6. That its use is attended with no danger, even in large doses.
7. That the only disagreeable symptom referable to the serum observed by the writer is a transient eruption which occasionally occurs at the site of the injection.
8. That the efficacy of the serum treatment is in direct ratio to the length of time which has elapsed between the onset of the disease and the first injection of serum.

THE SERUM THERAPY OF TUBERCLE.

The *Medical Press* of February 22, 1905, reminds us that during the past twelve months the method of serum treatment for tubercle most prominently before the profession has been that put forward by Marmorek. He held the view that tuberculin was not itself the toxin of tubercle, but that it was a bacterial product which served to excite tubercle bacilli to the production of a toxin. This being so, one could not expect any satisfactory result from treatment by antitubercular

serum. By the growth, however, of tubercle bacilli in a special medium, "leucotoxic serum," the preparation of which is very complicated, he has been able to produce a toxin which causes definite lesions in horses and other animals. To this toxin an antitoxin is produced in the blood of horses. It will be remembered that when Marmorek published his investigations a year ago, they met with hostile criticism from many French observers. The later reports, however, both in England and Germany, have been more favorable. Latham, Richer, and Fry all think well of the action of the serum, and advise further trial. More recently Friedman has separated a culture of tubercle bacilli from the lung of a turtle, and this culture is so innocuous to higher animals as to be available as a vaccine. In addition, it causes so high a degree of immunity in the ox that the serum of the latter may be used as an antiserum. No trials have yet been made in the human subject, but the prospects are most promising.

SOME NEW VIEWS OF INFANT FEEDING AND THEIR PRACTICAL APPLICATION.

CHAPIN in a valuable paper contributed to *American Medicine* of March 4, 1905, which has the above title states that analyses of milks have shown that their composition is closely related to the rapidity with which the young animal grows, milks rich in solids being for animals that grow very rapidly. For this reason an analysis of human milk will show about how much of the various food elements are needed for proper development. The tissues of the body are made up principally of proteid, which must be supplied in the food, as the organism cannot construct proteid from the other food elements. Therefore it is wrong to feed .80 per cent proteids as a routine measure when human milk contains from 1.50 to 1.75 per cent proteid. Anemia and rickets will in all probability be the result of such a method of feeding, although if sufficient fat and sugar are given along with such a small quantity of proteid the infant will probably become fat and gain in weight. It is not safe, therefore, to judge the value of a food solely by the fact that it causes gain in weight. This leads up to classify-

ing feeding cases, for sometimes it is necessary to feed low amounts of proteids.

There are two sharply defined types of cases to be considered: (1) Those in which there is no indigestion, but in which the mother cannot nourish the infant. (2) Those in which indigestion has to be treated. The problems before the physician in these two kinds of cases are entirely different. In the plain feeding cases he has only to select food that will have the same food value as mother's milk and which will develop the digestive apparatus; it is in these cases that a knowledge of the principles of home modification of cow's milk is required. In the cases in which indigestion is the prominent factor, little is to be expected of fine variations of milk mixtures, as oftentimes the best results are obtained by stopping milk entirely for a time, and substituting other forms of food until the indigestion is corrected, when milk modifications may be tried as for a healthy infant.

In modifying cow's milk it is diluted because it contains more proteid than an infant needs, and in addition the proteids of cow's milk are difficult of digestion by the infant, so any excess of proteids only throws unnecessary work upon the already overtaxed digestion. As diluting the milk reduces the fat and carbohydrates in the milk to below what the infant needs, these elements are added. The successful modification of cow's milk consists in feeding as much of the heat and energy-producing elements of food (fat and carbohydrates) as the infant needs and which it can usually digest with little disturbance, and gradually working up the quantity of proteids from an amount a little below the actual needs of the infant to its full requirements. This is done because of the difficulty most infants experience in digesting as much proteid derived from cow's milk as is found in human milk.

If the difference in the properties of human and cow's milk actually did lie only in the relative quantities of casein present it would be a very simple matter to make human milk from cow's milk, but the casein of human milk differs radically from that of cow's milk, and there is no known method of making them alike. Since the important part that casein plays in the development of the stomach has become known, it is realized that it would be a great mistake to feed the proteids in a

soluble form, except temporarily, when such soluble proteids or peptonized milk may be used. The real problem then is to make the casein of cow's milk suitable for an infant's digestive tract. There are two methods of doing this which have been advocated. One is by the addition of alkalies to the food, and the other is the dilution of the milk with gruels.

When it was supposed that a fundamental difference between human milk and cow's milk was that human milk was alkaline and cow's milk acid, it seemed plausible to add some alkali to cow's milk for infants. But when examination was made of this subject it was found that the teaching was to add to food containing fresh cow's milk more alkali than would be necessary to neutralize it if it were actually sour. One or two grains of sodium bicarbonate to an ounce of food for a young infant is more than enough to neutralize the food, even if it has soured. No effervescence of gas takes place when the soda is thus added, which shows that there was no acid in the food that needed to be neutralized. What, then, is the effect of adding alkalies to the infant's food?

It is briefly this: the ferment of the stomach will not curdle the milk in the presence of alkalies, and no stomach digestion can take place in the absence of acid; so long as there is alkali in the food digestion will not take place in the stomach, but the food will pass into the intestine in a fluid condition, and the aim of nature in developing the stomach may be defeated unless a perverted gastric secretion is produced. There are times in an infant's life when antacids are very beneficial, just as in the case of adults, but it does seem to be contrary to all accepted theories of gastric digestion to be constantly adding strong antacids to the food and thereby retarding the action of the gastric juice.

By the use of gruels in diluting milk we only follow nature in supplying internal teeth, so to speak, which break up the curd of cow's milk and expose more surface to the normal digestive secretions. The objection raised by some to putting starch in the food may be offset by the use of digested gruels, which supply considerable proteid in a finely divided form, which acts as the attendant. The saliva naturally acts on starches before they

reach the stomach, so in supplying these digested gruels we are only anticipating nature, and doing what the infant cannot thoroughly accomplish at an early age. Artificial feeding is itself anticipating nature and is in its way unnatural, as there is no real method of actually following nature in infant feeding except by maternal feeding or the use of a wet-nurse. In a word, by the use of gruel diluents we encourage the use of the digestive apparatus; by using alkaline diluents we retard or pervert the functions of the infant's stomach.

ALCOHOL IN DISEASE.

In discussing a paper upon this subject in the *Medical Record* of March 4, 1905, PEABODY states that very little of the recent work by scientists relates to alcohol except as a food, and he would speak of its use as a therapeutic agent in disease. He refers to its use in angiomas, in carcinomas, and as a disinfectant of the skin, because of its powers of permeation. Alcohol has been applied to the abdomen on compresses soaked in it in cases of peritonitis. Dr. Peabody has found it very efficacious in peripheral neuritis and phlebitis, as well as in abscesses such as furuncles and allied conditions, but to be effective it should be applied early. It was also of value in phlegmonous inflammations. Its power of relief was best explained by its powers of dilating the blood-vessels and relieving conditions of pressure. The alcohol was used by soaking cheese-cloth compresses, applying them to the parts, and covering with gutta-percha paper and cotton-wool. The compresses should be saturated. This should be used cautiously in cases in which the epidermis is very thin.

Its antidotal powers in cases of carbolic acid poisoning are referred to. During recent years, according to the author, the tendency has been to recede from a very great use of alcohol as a therapeutic agent, and many physicians have refused to use it in any cases. It is a fact already proven that large doses of alcohol render animals less resistant to pathological conditions. Dr. Peabody believes that in alcohol we possess the best means of stimulating the heart. Necessity for its use might arise from some primary weakness and enfeeblement due to febrile dis-

eases. Often this agent has been prescribed when not justified. The use of alcohol should not be abandoned because of the fact that it has been much abused. The symptoms of intoxication are due to its parietic effect upon the cerebral cortex.

When all has been said against alcohol, it still remains that it has a place in general applicability. In cases of high, persistent temperature, with delirium, nervous prostration, with a pulse rapid and easily compressible and dicrotic or irregular, the condition always calls for the administration of alcohol. Its dose should be half an ounce of whiskey every three, four, or five hours to begin with, but its continuation should stop as soon as it is no longer productive of good. When the patient approaches the condition of health, he is cautioned against its habitual use. When the tongue becomes less dry, and the skin moist, when the wakefulness and delirium become less marked, and when the powers of assimilation improve, then the further giving of alcohol should cease. He subscribes to Meltzer's saying: "Alcohol in health is often a curse; alcohol in disease is mostly a blessing."

MUCOUS COLIC.

KEMP gives the following advice in *American Medicine* of March 4, 1905. He says there are certain mixed cases, in which there is a catarrhal colitis, with a mucous colic later engrafted upon it. Among such we can classify those that may apparently be caused by excessive bicycling, or horseback riding, enlarged prostate, uterine fibroids, adhesions from appendicitis, etc. In some of these conditions a local congestion of the rectum, or sigmoid, can be detected, and careful investigation will demonstrate that the attack first starts as a simple prostatitis, or colitis. Constipation has previously been present. Consequent autoinfection, nervous symptoms, and finally mucous colic result. Careful examination will reveal that these patients have had an existing ptosis of stomach and colon—quiescent, with no resulting symptoms, but as a result of irritation, causing favorable conditions, a mucous colic will develop. The correction of such sources of irritation is undoubtedly rational, and will thus readily explain the improvement which at

times occurs after operative procedure. The existence of the "mixed cases" will undoubtedly "clear up" the hitherto apparently diverse opinions as regards the etiology of this disease.

In such cases, with a coexisting catarrhal colitis, irrigation with nitrate of silver, 1.3 to 2 grammes (20 to 30 grains) to two quarts of water, and followed by saline solution, or with resorcin, .65 to 1.3 grammes (10 to 20 grains) in two quarts, is useful. The author has often found enteroclysis with demulcents, such as weak flaxseed tea, or 178 or 236 cubic centimeters (6 or 8 ounces) of a saturated solution of gum arabic, or the same held in suspension and added to two quarts of warm water, of value.

In the case of pure mucous colic he employs only normal saline solution, or the demulcents, for removal of the mucus, since the condition is due to hypersecretion and not inflammation, and avoids silver irrigations in such cases, since irrigations of silver, tannin, alum, etc., can produce an artificial hypersecretion. Small doses of olive oil, or of castor oil, in capsules, seem of value for the constipation, and improve the tone of the mucous membrane of the intestine, providing they do not increase the patient's dyspeptic symptoms.

Nux vomica or strychnine is of service in increasing the tone of the gastrointestinal tract and the general muscular system. Resorcin, 5 grains, or sodium benzoate, 5 grains to 10 grains, or bismuth salicylate, 5 grains to 10 grains, should be given if there is much gastrointestinal fermentation. The use of the following, recommended by Dr. William H. Thomson, in the mixed cases for the treatment of the true catarrh gives good results:

℞ Silver nitrate, 32 Gm. (5 dr.).
Resin of turpentine, 89 Cc. (3 dr.).
Potash solution, 30 Cc. (1 dr.).
Pulverized licorice, sufficient quantity to make pills soft.

Divide into 60 pills. Dose: three pills three times daily.

Copper sulphate, .02 gramme ($\frac{1}{4}$ grain), three times daily, may be substituted later. Fowler's solution of arsenic, in .06 cubic centimeter (1 minim) dose, three times daily, has also been found useful in these mixed cases.

General Treatment.—Exercise and outdoor life, as golf, etc., to strengthen the

abdominal muscles, are important. During winter weather fencing is useful. The general nervous system must be toned up, and anemia should be corrected. An excellent combination is a fresh Blaud's pill (iron) .32 gramme (5 grains), made soft with honey; in each pill is incorporated 2 minims Fowler's solution of arsenic, and extract of nux vomica 8 milligrammes ($\frac{1}{8}$ grain), or 1 milligramme ($\frac{1}{60}$ grain) of strychnine. The glycerophosphates, or phosphorus compounds, are of value for the nervous conditions. Hydrotherapy, massage, and electrotherapy may be used.

Diet.—Fluid diet, milk, kumiss, broths, gruels, etc., should be used during the attacks. Between attacks Von Noorden advocates a very coarse diet—bread containing plenty of chaff, vegetables rich in cellulose, fruits with skins, etc., etc.—to form ballast for the bowel. He claims excellent results. It is the writer's custom to determine the condition of the stomach. Like Einhorn, he has found cases of achylia gastrica in mucous colic, but more cases of hyperchlorhydria and a few of hypochlorhydria. These conditions should be treated in each individual case and appropriate diet instituted. We should, however, give our patient abundant nutrition in the form of a mixed diet. Cod-liver oil and fats are of value when they can be assimilated. The addition of healthy fat, with increase in weight, means the cure of the patient.

ON THE USE OF TYPHOID FILTRATES IN THE TREATMENT OF TYPHOID FEVER.

An experience with twenty-two cases of typhoid fever treated with the filtrate of a bouillon culture of the typhoid bacillus leads RICHARDSON, who writes in the *Journal of Experimental Medicine* for February, 1905, to hope that in this fluid we have an agent of therapeutic value. This hope is based on the following observations:

The filtrate of a typhoid bouillon culture grown for six weeks at the body temperature has little, if any, toxic power. Two cubic centimeters injected intraperitoneally into guinea-pigs of two hundred and fifty grammes weight causes no discomfort beyond a minimal temporary loss in weight. Such injections produce, how

ever, a certain amount of immunity, not only in the guinea-pig, but also, when given subcutaneously, in the healthy human subject.

Typhoid patients, on the contrary, may react quite sharply to similar small injections (two cubic centimeters), such reactions being characterized by a chill, rise in temperature, and increased frequency of pulse and respiration.

This reaction has occurred at least once in one-half the cases thus treated, and is to be explained possibly thus: The filtrate is non-toxic, but contains other portions of the bacillus, such as, for instance, the envelope, which substances, though harmless in themselves, stimulate the body cells to the production of an excess of specific antibodies. These, then, attack the bacilli with which the patient is infected, and by setting free their intracellular toxins bring on the chill and its accompanying manifestations. This reaction being, therefore, according to this theory, the evidence of bacillary destruction is not necessarily a phenomenon to be avoided, but is, if not too severe, rather a good omen.

Experience thus far seems to show (as might be expected) that the best results are to be obtained in cases not yet too severely damaged by the typhoid poison. Tissues in a state of hyperintoxication cannot be expected to respond emphatically to further stimulation. Indeed, if they could respond, such excitation might be contraindicated as producing, possibly, toxin in sufficient excess to be a source of danger. The treatment is best suited, therefore, to cases in which the individual can, in the first instance, respond to extra stimulation, and in the second instance can stand a temporary hyperintoxication resulting from an increased destruction of bacilli.

According to this theory, then, we should expect, as a result of treatment, a temporary increase in the severity of the symptoms, due to the toxins contained in the destroyed bacilli, but that, following this check in their growth, the organisms would succumb gradually to an increasing immunity, with a corresponding amelioration of symptoms. The best conditions for the use of this treatment should, therefore, be seen in cases of threatened relapse, be this of the true type or of the intercurrent variety, for in either case the individual would have a comparatively

large store of acquired immunity to call into action to check a reinfection in its earliest stages. Less favorable, but still hopeful, conditions should be found in the beginnings of the original disease, when the natural immunity, still unexhausted, could be called upon for extra exertions in crushing a nascent infection. Finally, comparatively little good should be expected, indeed harm might be done, if an individual already hyperintoxicated were subjected to the effects of an exaggerated destruction of bacilli.

In this series of twenty-two cases there occurred two deaths, one from pulmonary embolism and one from hemorrhage, both mechanical complications for which the writer does not hold the treatment in any way responsible.

The other twenty cases have, in a general way, corresponded in their course to the theory above outlined. Unfortunately most of the cases did not come under observation until the disease was well advanced. Five early cases are especially interesting as showing what seems to have been a shortening of the disease:

Case 1.—Injections begun on the tenth day; normal temperature on the eighteenth day.

Case 2.—Injections begun on the eighth day; normal temperature on the eighteenth day.

Case 3.—Injections begun on the seventh day; normal temperature on the twelfth day.

Case 4.—Injections begun on the eighth day; normal temperature on twentieth day.

Case 5.—Injections begun on the twelfth day; normal temperature on seventeenth day.

Finally, it is apparent that the value of this method of treatment cannot be fully determined without much further experience with a larger series of cases.

ERGOT AND ARSENIC IN CHOREA.

RIVIERE reminds us in the *British Medical Journal* of February 18, 1905, that in the same journal of July 18, 1903, Dr. Eustace Smith introduced to general notice the value of ergot in the treatment of chorea. Dr. Smith had used this treatment in his wards at the Shadwell Children's Hospital for a long period previous to that communication, and having

been favorably impressed with what he saw of it, the writer of this paper determined to give it a systematic trial among out-patients, where the favorable surroundings of in-patient treatment are not present to throw doubt on the action of the drug. Accordingly, between December, 1902, and May, 1903, he made notes of some thirty-five such cases coming under his care in the out-patient department at St. Bartholomew's Hospital, and has since treated a number of cases both there and at the Shadwell Children's Hospital. It is the result of this treatment that he now desires to record.

It will be seen that the determination of drug action on out-patients has certain advantages and certain disadvantages. The chief advantage is that the patient remains in the same general surroundings, so that whatever changes arise may more fairly be attributed to the effects of drug treatment. The main disadvantages are the risk that the medicine is not administered (not a serious one), and the difficulty of giving sufficiently powerful doses without fear of poisoning. With certain diseases, and especially with chorea, comes in besides the fallacy of spontaneous temporary or permanent improvement, and the various changes to be observed from week to week in all such cases, apart from treatment. In consequence of these sources of error, and the great variety in the types of cases treated, the writer has decided that a statistical table of the results of treatment would be valueless, a general statement of results and impressions being more likely to prove reliable. The ergot was given in doses of one drachm or one and a half drachms of the fluid extract thrice daily, with a little strychnine, as recommended by Dr. Eustace Smith. These doses gave rise to no symptoms of poisoning, nor, indeed, to any physiological effects that were appreciable to the author. Among such out-patients he has found no signs of arterial spasm, as indicated by slowing of pulse, increase of pulse-tension to palpation, or accentuation of the aortic second sound. The slowing of pulse, perhaps the most delicate sign, is of course valueless among child out-patients owing to the disturbing effects of temporary excitement or exertion.

The writer's early conviction was that the ergot mixture had a marked curative

effect on certain cases of chorea, and that in other cases the disease remained unchanged or became worse. His results show that about half of the cases were rapidly improved or cured by this means, and that most of the remainder improved when arsenic was substituted. He has endeavored, but with negative results, to separate by some clinical features the type of cases which responds to treatment by ergot. Several divisions of choreics may be made, all more or less arbitrary. Thus, cases may be divided into rheumatic and non-rheumatic, into those with much and those with little voluntary control, into those with little or much movement, into first attacks and later attacks, etc. To none of these divisions do the ergot-cured cases belong; examples of such may be found in all these classes. That it is the drug treatment which acts in these cases there is no doubt, since often if it is stopped the case relapses, and is again cured or improved by its readministration.

When the ergot treatment was found to have failed, arsenic was given, and in many cases improvement dated from that moment and progressed slowly to cure. These may have been cases where arsenic would have benefited from the first. On the other hand, in two cases a curious thing happened. Their first ergot treatment was ineffectual, arsenic made them worse, but on returning to ergot after arsenic had been tried they were immediately improved or cured. This suggested to the author the advisability of trying ergot and arsenic in combination. This he did with a mixture containing one drachm of extract of ergot and three minims of liquor arsenicalis, these doses being increased as seemed desirable. He has used this mixed treatment for the past year, and has had such desirable results with it that he has been tempted to make this communication for the purpose of recommending it. Its good effects embrace, no doubt, three kinds of cases: (1) Those that are benefited by ergot; (2) those that are susceptible to arsenic; and (3) those, perhaps few in number, where, as in the two cases already mentioned, the one drug seems to supplement the other.

The writer further says that among out-patients there are few cases which remain unbenefited by this treatment, and

confesses to a feeling of great helplessness when he meets with such. In the majority the improvement begins at once.

The unbenefited cases consist mainly of those violent choreas for which so little beyond isolation can be done. Ergot and arsenic, given in such doses as one dares prescribe for out-patients, have no beneficial effect, and admission to hospital soon becomes imperative. The effect of ergot on those violent and protracted cases which gain admission to the hospital wards has been already described by Dr. Eustace Smith in the article to which the author gave reference at the beginning of this communication.

THE TREATMENT OF THE EAR COMPLICATIONS OF SCARLET FEVER.

JARECKY gives this advice in an article in the *Medical Record* of February 25, 1905.

For the swelling, itching, etc., of the external ear, usually a mild dusting powder, as starch, talcum, or magnesium carbonate, either alone or in combination, suffices.

In middle-ear disease pain is best treated with hot-water irrigations, using from a pint to a quart in a douche jar or bag about one foot over the head, the stream being directed to the sides of the canal. A hot-water bag applied to the ear also aids. A hypodermic injection of morphine sometimes shortens an attack. Local abstraction of blood with an artificial or natural leech over the tragus may control the trouble. Watery solutions of cocaine, atropine, or tincture of opium dropped into the canal occasionally give relief.

Oil should never be used. Saturating cotton with chloroform and blowing the vapor into the meatus sometimes acts nicely. The nose and throat should be swabbed or irrigated and kept clear of mucus. The bowels should be moved freely. A gentle inflation will sometimes dispel a plug of mucus from the origin of the Eustachian tube, and allow drainage. The author has observed relief at times with one of the coal-tar analgesics, dose according to the age. A 10- to 12-per-cent solution of carbolic acid in glycerin soaked in a piece of gauze and applied directly to the drum membrane, by its exosmotic action, has frequently given

very satisfactory results. It can be changed every six to twenty-four hours as indicated.

If the attack is not aborted and pain does not stop, the drum membrane will show signs of active congestion and even bulging. This should not be allowed to rupture spontaneously, as the perforation is jagged, does not heal well, and always causes loss of audition. Paracentesis should be performed immediately. There should be no delay. The pain will be relieved, the prognosis is more favorable, as the drum hears better, and what is most important the system is relieved of infectious material as soon as possible. For adults and older children the author uses general anesthesia with ethyl chloride or nitrous oxide while operating. Infants can be held without much difficulty. With local anesthetics the author has had no satisfactory results. Cocaine is not absorbed. Anilin oil and cocaine have caused toxic symptoms. Equal parts of menthol, carbolic acid, and alcohol have been only occasionally successful.

To operate, the canal should be thoroughly cleansed with a solution of 1:4000 bichloride or mopped out with peroxide of hydrogen. Then with good illumination the knife should pass through the bulging portion, or from the point at the center of the posterior section, to the lower border of the membrane close to its bony attachment by a curved incision—that is, through the posterior inferior segment. At the same time the author incises the mucous membrane of the internal tympanic wall and the posterior superior canal for one-fourth of an inch, down to the bone, securing thorough depletion.

If the membrane has ruptured spontaneously one should always examine to see if there is sufficient drainage; if not, a free incision should be made, including the perforation in its path. The author prefers a straight knife, but one at an angle can be used. The instrument should be exceedingly sharp so as to pass through the membrane by its own weight. After the operation he irrigates with bichloride 1:5000, packs the canal tightly with sterile gauze, puts a pad of cotton over the ear, and retains the whole with a bandage, which he usually leaves undisturbed for twenty-four hours, directing the patient to lie on the side affected to

facilitate drainage. When the dressing is removed he orders irrigation in accordance with amount of discharge. Some cases heal in a few days.

The discharge, which is at first serous, later often becomes purulent and profuse. The cleansing may be needed every two or three hours. Sterile water, decinormal salt solution, saturated solution of boric acid, or a solution of 1:5000 or 1:10,000 bichloride can be used. Cotton used in the external canal should be changed frequently. These cases can also be treated by the dry method, when they can be closely watched. The ear is cleaned, dried, and strips of gauze daily introduced for drainage. In the majority of cases thus treated excellent results have been obtained.

Still a third method is to syringe the ear, use hydrogen peroxide, and syringe again. The ear is then mopped out and dried, and this is followed by repeated instillations of alcohol, diluted if painful in its full strength. The author strongly opposes the use of peroxide of hydrogen, as he has seen one case, and is almost sure two cases, of mastoid involvement due to its use.

The use of powders, as boracic acid, iodoform, etc., is excellent when discharge is slight and for irritation in the canal. Care must be taken not to block up the opening in the drum membrane. The powder may remain until moistened by the discharge.

Toward the end of the acute stage inflation with the Politzer bag or Eustachian catheter helps to get rid of pus and prevents adhesions.

If the discharge continues and a chronic condition remains the ear must be kept clean. Various astringents can be used, granulations should be cauterized, and polypi removed. If there is much exposed bone, an offensive discharge, and polypi, the safest course is a radical operation. Many a facial paralysis and dural abscess with brain involvement would be avoided by an early adoption of this procedure.

If the mastoid is involved, the author applies an ice-bag or the Leiter coil for twenty-four hours, with rest in bed, light diet, cathartics, and frequent irrigation of the canal. There must be a free opening in the tympanic membrane. If pain

ceases he stops the cold for twelve hours, and when necessary reapplies it for the same length of time. If the symptoms still continue he urges operation. He gives no opiates to disguise symptoms, nor employs leeching or iodine over the mastoid, as it prevents proper examination for tenderness.

In closing his paper the author emphasizes: (1) The necessity of paying attention to the removal of hypertrophied tonsils, adenoid vegetations, and nasal obstructions in all of our little patients, so that when subjected to the strain of scarlet fever they may avoid the principal method of ear infection. (2) Owing to the rapidity with which destruction of aural tissue and extension of infection take place in this disease, as soon as the tympanum shows signs of exudation and the membrane of bulging a paracentesis should be immediately performed. (3) Repeated examinations of the ear, especially in infants and children, should be made on account of the uncertainty of the symptoms.

THE EFFECTS OF THE ROENTGEN RAY UPON CANCER.

In a paper in the *Journal of Experimental Medicine* for January, 1905, Vose and Howe reach the following conclusions: It seems that cutaneous cancer treated by x -ray undergoes a degeneration, not peculiar to this form of treatment, or distinguishable histologically from degeneration from other causes. The vascular changes are limited to an endarteritis; new formation of blood-vessels occurs if healing takes place, as in the process of repair elsewhere; there is an increase of elastic tissue. Mitotic forms are less abundant after treatment.

Taken as a whole the clinical cases show: (1) That the only cure of cancer by the x -ray is by destruction and exfoliation. This at once limits its value to superficial cases. (2) That this destructive process is a slow one and acts very superficially. Since it is well known that many essentially chronic superficial epidermoid cancers may be removed permanently by the slightest surgical procedure, that course seems preferable to the somewhat tedious treatment by x -ray, and as they both may fail an extensive surgical operation, if necessary, may be

undertaken more promptly in the former case. (3) That being non-selective in its action, the x-ray cannot be used strongly enough to effect destruction of anything but the shallowest tumors without serious injury to the overlying and surrounding tissues, or, in other words, producing such a burn as experience shows in all probability never would heal.

CONVULSIVE TIC.

PATRICK has this to say in the *Journal of the American Medical Association* of February 11, 1905, in regard to the cure of tic.

The author's own attempts have been along various lines. Some years ago injections of atropine into the affected muscles were advised. He tried them, and they made his patients worse. The muscular soreness produced by the injection simply increased the local discomfort and the patient's self-consciousness. The ordinary sedatives he has tried, and they have constantly failed in his hands, as in others. A few years ago, in a discussion before the American Neurological Association, conium was highly spoken of. In his next case the author gave it a faithful trial. At first there was some relief, but this was transient, and subsequent doses, carried to the toxic limit, accomplished nothing.

In one bad case he tried the opium-bromide treatment as advised by Flechsig for epilepsy. It was of no avail. During the course of opium the patient was not uncomfortable. When he changed to the bromide he did not take it well, and was soon as bad as ever. Once he nearly cured a bad case of many years' standing by means of hypnotism. For several weeks the case progressed in a way most satisfactory to him and wonderful to the patient. Then, contrary to the strict injunctions of his physician, the patient had a long interview with a relative. This made him more nervous, which the author at once noticed, and finally elicited the cause. His reprimand was resented. Because of his frame of mind, the following sitting was less successful than the preceding ones. The lack of success engendered lack of confidence, and the next sitting was less successful than the preceding ones. Disappointment, regret, loss of

hope, despair, followed in turn, and the patient returned to his home nearly as bad as when he came.

Two years ago the author saw, in London, a case of Bastian's practically, not absolutely, cured by keeping the patient asleep most of the time for several weeks. He came home and tried the method on an old and very rebellious case. The result was gratifying. At the end of the sleep period the patient was very much better, and then, under the exercises to be mentioned presently, he continued to improve. He returned to work with only a trace of his trouble, but a perfect recovery was not obtained.

The very next time the author used this treatment dismal failure was the result. Even when the patient was asleep eighteen hours out of the twenty-four, during waking moments the spasm asserted itself with a vengeance. And as the effect of the drugs wore off, the trouble resumed its wonted severity.

The author's friend, Dr. Singer, formerly of London, now of Omaha, recently stated that in two cases he had excellent results from suspension. The author immediately tried it, but before the treatment was well under way the patient got homesick and left the hospital.

Meigs and Feindel have elaborated a system of exercises advocated by Brissaud, and have treated a great many cases in this way. Their results have been good; the method is rational and constitutes a real addition to our means of combating a most troublesome disorder. To go into detail would require a separate paper. A full description will be found in the excellent and exhaustive treatise by these gentlemen. Stated simply, the system is one of dynamic and static exercises, gradually teaching the patient to move and hold his head properly. This is no easy task. Great patience, persistence, courage, and confidence on the part of the patient are the requisites for success. While the advocates of the treatment are loud in its praises, not to say enthusiastic in their propaganda, their statements will be found to contain sundry qualifying terms and conservative cautions. It must be confessed that their reports seem to lack definite statement of complete cures.

With this, as with all other methods of treating spasmodic torticollis, the great

drawback is the patient himself. He is generally a neuropath *par excellence*. He is hypersensitive, too impressionable, erratic, poorly balanced. His enthusiasm is transient, his faith evanescent, his disappointment overwhelming, his desire paramount. Although he may be intellectually brilliant, he is mentally puerile; he cannot control himself and is most difficult to control. Just when the treatment, whatever it may be, is running smoothly, some whim, feeling, emotion, desire, or opinion of the patient intervenes to derange the whole plan and withhold success. Within an hour such a patient's whole mental attitude may be quite reversed. From hearty coöperation with his physician he changes to skepticism, distrust, mutiny, perhaps as quickly to return to allegiance and obedience.

The author's present opinion is that the soporific treatment, followed by the educational exercises of Brissaud, will be found effective in more cases than any other method of treatment. By means of veronal, trional, chloral, and bromides, the drug to be changed every few days, the patient is kept asleep nearly all of the time for three or four weeks. As the waking time increases he is shown how to practice moving the head slowly, rhythmically, and normally in every direction. He is also to practice holding it quietly in any given position. At first the exercises must be executed under supervision. Later he can manage them himself, preferably with the aid of a mirror.

ORTHOFORM IN THE DIAGNOSIS OF GASTRIC ULCER.

In *American Medicine* of February 18, 1905, MURDOCH advises the use of this drug. His claim for orthoform in gastric ulcer is simply this: Given a patient suffering from a sudden, severe pain in the epigastrium, and if the pain entirely disappears in twenty or thirty minutes after the administration of orthoform, we may be certain that the patient was suffering from gastralgia, the result of ulcer of the stomach; for orthoform will not relieve pain in the epigastrium when produced from any other cause whatever. In regard to the experience which others have had with orthoform in gastric ulcer, Hemmeter says: "There is another point

of value in making a differential diagnosis. It has always been considered desirable to possess a substance which would relieve gastric pain if applied locally in patients afflicted with gastric ulcer. For this purpose I have administered orthoform. If orthoform is given in cholelithiasis the pain will not cease; but if given in a case of gastric ulcer it will cease promptly, especially if an alkali be combined with it."

The alkali, however, the author thinks, is superfluous. He has always given plain orthoform, and has never seen it fail to relieve gastralgia promptly, no matter how severe, if caused by chronic ulcer of the stomach.

THE TREATMENT OF PUERPERAL FEVER.

The *London Practitioner* for March, 1905, contains a paper upon puerperal sepsis by GALABIN which is of interest. He says that in cases of moderate pyrexia, where the temperature does not exceed 102° F., and where there is no reason to suspect any adhesion or partial retention of placenta or membranes, it may be sufficient in the first instance to wash out the uterus. The best tube for the purpose is Budin's tube, the transverse section of which is in the form of a horseshoe, so that there is a deep groove on the outside of the tube providing for the return current, and not liable to be blocked by a clot or shred. These tubes are made in glass, celluloid, or metal, of which the metal is the best, since it has the deepest groove in proportion to its size, and is most readily sterilized by boiling. For the uterine douche, it appears better not to use mercury, since poisonous effects have sometimes followed its absorption. Tincture of iodine one per cent, or lysol one per cent, in boiled water, answers the purpose. Although it is now generally considered preferable to use no vaginal douches during the puerperium in normal cases, yet when symptoms of sepsis have appeared they should be used and continued regularly, especially if any lacerations are present at the vulva. For the vagina perchloride of mercury may generally be used safely twice a day, provided the patient is in the dorsal position, and care is taken that no excess is left

the canal. The strength may be 1 in 3000 for two or three days, later 1 in 4000. It should be avoided in cases of renal disease, or if there is any diarrhea, and if diarrhea or tenderness of gums appear under its use, it should be changed at once to one of the antiseptics mentioned above. These may be used at shorter intervals. There is ground for believing that mercury has a special efficacy as compared with other antiseptics, since the early triumphs of antiseptics in lying-in hospitals were obtained by the substitution of perchloride of mercury for Cond's fluid and carbolic acid, not only as a disinfectant for hands, but as a routine vaginal douche during the puerperium.

If the bowels have not been well evacuated when pyrexia first appears, it is well to give a dose of three or four grains of calomel, followed by sulphate of soda after a few hours. The pyrexia may be dispelled by the clearing out of a fecal accumulation, and these drugs have some influence as intestinal antiseptics. For the same reason there is some advantage in using sulphates, if laxatives are required later. If mercurial douches are being used, it is important to secure a daily action of the bowels.

Exploration of the uterine cavity should not be farther delayed if pyrexia is not abated after these measures in the course of twelve hours or so. It should be carried out at once, if the first onset of pyrexia is very severe, temperature rising to 103° or 104°, if there has been any adherent placenta, or if there is reason to suspect that a portion of the placenta or membranes has been left within the uterus. An anesthetic is given, and the uterine cavity explored with the index-finger completely to the summit. This exploration should not be omitted, even if it is considered certain that placenta and membranes have come away complete. For mistakes are sometimes made in this, and moreover there may be a septic clot adherent to the placental site, or sloughy fragments of decidua attached to the uterine wall, the result of the action of saprophytic microbes.

According to the experience of the author, this early exploration of the uterus is the measure for the treatment of puerperal fever which is most often omitted in private practice, or postponed until it

is too late to be of service. It is not adequately replaced by repeated irrigations of the uterus, since this does not secure the evacuation of adherent shreds which may be furnishing a nidus for microbes. He suggests that it is in this respect that the ordinary treatment is most capable of improvement.

By some, especially by French and by some American authorities, not merely evacuation by the finger but curetting of the uterus has been extensively practiced. The object is not merely to break down adherent placenta, but to remove the whole of the endometrium in which microbes are spreading. It appears, however, a very remote chance that this can be successfully accomplished, especially when the microbes are streptococci, which spread deeply in the tissues. On the other hand, the traumatic effect is apt to be injurious, and the barrier of leucocytes which may have been established against the invading microbes is apt to be broken down, without removal of the whole of the infected tissue. The general opinion, therefore, is that curetting as a routine measure increases rather than diminishes the mortality.

THE GENERAL EFFECTS OF ANTIDIPH- THERITIC SERUM.

The *Birmingham Medical Review* for February, 1905, reminds us that it is important, now that the use of antidiphtheritic serum has become so general, to recognize some of its effects unconnected with diphtheria. For this purpose Coldefy gives the results of 400 cases in which serum was injected as a prophylactic measure, and in which there was no diphtheria at the time. In six of these cases there was pyrexia, which appeared and disappeared rapidly. In eight pyrexia lasted a short time. In a tubercular patient the fever lasted over several days, and was a troublesome feature in the case, so that the writer advises that antidiphtheritic serum should not be injected in cases of tuberculosis unless absolutely called for. Apart from such cases, the temperature phenomena following injection are, therefore, unimportant. Eruptions are one of the commonest results. In a few cases an eruption appears immediately; in others at a later date;

but all within a fortnight of the injection, most usually about the fourth or fifth day. It is exceptional for post-injection eruptions to appear after the fifteenth day. Eruptions sometimes disappear to return at the end of a few days. In several cases the patients happened to have pyrexia from some other cause. The injection of antidiphtheritic serum did not interfere with the fall of the temperature in these cases.

Albuminuria has given rise to considerable discussion. In the writer's series of 400 cases it was present fourteen times, slight in amount, and only lasted two or three days. It usually appeared during the first week. It is, therefore, of trivial occurrence. Should the patient, however, be suffering from nephritis (non-diphtheritic), it would seem better not to use serum as a prophylactic measure, reserving it for cases in which diphtheria is actually present. The quantity of urine is not affected to any appreciable extent. In four cases there seemed to be an increase in the amount.

Arthralgia occurs in three per cent of cases, and lasts three or four days. It sets in suddenly, and reaches its maximum on the second day. No bad effects result. It consists in violent pain in one or more joints, the knee being most usually affected, but the elbow, shoulder, and temporomaxillary articulations are also involved. The pain is not accompanied by either swelling or redness of the skin. It is usually limited to the joint, but may extend along the limb. In other cases myalgia is complained of. This is of even shorter duration than arthralgia. In cases both of arthralgia and myalgia there is usually some pyrexia, and possibly eruption. In some cases the pain is sufficiently severe to require the application of an anodyne. In several cases sore throat and glandular swelling appeared. They seemed to constitute one of the general phenomena resulting from the injection. The former bore no resemblance to diphtheria, and both symptoms lasted a very short time. Serum rarely gives rise to any disturbance of the alimentary system. The writer has, however, observed fetid diarrhea, and he quotes Moizard as having noted the same fact. In one case the diarrhea was accompanied by vomiting. Vulvitis was present in three cases,

but the author does not feel justified in recognizing any connection between such cases and serum injection. It has been stated that syncope, cardiac arrhythmia, trismus, and convulsions may result from injection. There were no such phenomena in any of the writer's 400 cases. He therefore believes that when these have been noted in cases of diphtheria treated with serum they should be attributed to the former. It is stated that postdiphtheritic paralysis is met with more frequently since this method of treating diphtheria has come into vogue. The explanation is obvious. In former times a large number of children died; now that the greater number of those treated with serum are saved, they live to show diphtheritic paralysis, and serum treatment is the best for this condition. The writer has noticed that, while none of these effects is severe, they are most marked and last longest in patients of feeble constitution or suffering from some other disorder, and that even in such patients there is nothing to fear from the results of serum injection.

THE LIMITATIONS OF THE VALUE OF NITROGLYCERIN AS A THERAPEUTIC AGENT.

LOOMIS writes on this subject in the *Medical Record* of March 18, 1905. As a result of these clinical and laboratory observations he offers the following conclusions:

1. The usual dose of nitroglycerin (1-100 grain) is too small to produce any effect in pathological conditions; 1-50 grain is a minimum dose.

2. It is a perfectly safe drug to use. Even in the large and repeated doses used no ill effects have been noticed.

3. High arterial pressure in man is not perceptibly affected by it, nor is dilatation of the blood-vessels apparent.

4. Its effects are very transient, as shown by the experiments on dogs, and the ordinary dose of 1-100 grain every four hours could not possibly have any effect on the arteries.

5. Nitroglycerin is said to increase the quantity of urine in chronic Bright's disease, but after keeping accurate records of the daily amount of urine passed, the writer was never able to satisfy himself

that any increase seen was due to this drug.

6. He believes that in conditions due to arterial spasm so called, such as angina pectoris, migraine, and asthma, nitroglycerin may be of benefit, in full doses often repeated, but not in arterial sclerosis, where the arteries themselves are more or less changed.

Before closing he mentions a drug which in his experience has given most satisfactory results in relaxing the arteries and diminishing blood-pressure in arterial sclerosis. He refers to chloral hydrate, given in five-grain doses every four hours night and day. The effects are extraordinarily uniform. The sphygmomanometer will generally show a marked fall of pressure in twenty-four hours, and the distressing symptom of headache will generally be controlled. At the New York Hospital during his service, as well as that of his colleagues, Dr. Peabody and Dr. Lambert, nitroglycerin has been entirely discarded in arterial sclerosis, and chloral hydrate has taken its place.

THE MEDICAL TREATMENT OF GASTRIC ULCER.

HENRY writes on this subject in *American Medicine* of March 11, 1905. He advises that the patient be put to bed and kept there for ten days. On the first day the epigastrium is carefully washed with alcohol and sublimate solution; an ointment of boric acid spread upon a cloth is then applied to the same region, and over the cloth a hot flaxseed poultice about 20 centimeters long by 10 centimeters wide. The poultice is changed every fifteen minutes, and is kept applied for from ten to twelve hours during the day. At night a cold-water compress is substituted for the poultice, the cloth spread with ointment being interposed between the compress and the integument. The boric ointment dressing is changed but once in the twenty-four hours. An occasional effect of these continued hot applications is the formation of vesicles, which rarely suppurate, and invariably heal as soon as the dressings are discontinued. As a result of this topical treatment both the gastric pain and the epigastric tenderness disappear with remarkable regularity about the fifth day. In the ex-

ceptional cases in which the pain persists, the poultices are continued (during the day) for five days after it has ceased. From the above it is evident that, in the majority of cases, the poulticing is kept up for ten days. After the cessation of the poulticing a cold-water compress is applied at night for three weeks, while during the day the patient wears an abdominal bandage of flannel. After meals, during the convalescent period, rest in the recumbent posture for one or two hours is enforced, and the patient is strictly forbidden to make any exertion or to pursue any occupation, such as sewing or knitting, which involves the bending forward of the trunk.

There are certain contraindications to the employment of poultices, one of which is the recent occurrence of gastric hemorrhage. Leube's rule is not to apply poultices unless three months have elapsed since the last hemorrhage. In such cases the cold-water compress is substituted, and even this is withheld unless eight days have passed without hemorrhage. The term hemorrhage, be it remembered, is not synonymous with hematemesis. To determine the presence or absence of hemorrhage, the feces should be carefully inspected. When hemorrhage is present at the beginning of the treatment, or within eight days thereof, an ice bladder is first applied, to be replaced later by the cold-water compress. Another contraindication to the employment of poultices is the occurrence of menstruation.

From the beginning of the course of treatment the patient is placed upon the use of Carlsbad water, which should be swallowed in the morning before breakfast with pauses between each mouthful. The water should be neither too hot nor too cold (35° to 38° C.) and the average quantity thus taken should be about one-fourth of a liter. In cases of extreme acidity the amount may be increased to one-half liter. From ten to fifteen minutes should be occupied in swallowing the water. The use of Carlsbad water is continued for four weeks, and for quenching the thirst during the day a slightly alkaline water, such as the natural "Selterswasser," should be used. Drugs, as already stated, are not employed, as a rule, but when pain is severe, sodium bicarbonate, or bismuth, may be admin-

istered. Narcotics, such as opium and its preparations, including codeine, are never prescribed. In cases of obstinate constipation, enemata of tepid water may be employed daily, and every two or three days a dose of Carlsbad salt. After the eleventh day constipation may be relieved by a teaspoonful of a powder composed of powdered rhubarb 20 grammes, sodium sulphate 15 grammes, sodium bicarbonate 7.5 grammes.

The third important factor in the treatment is the diet. Nourishment is administered five times daily, and during the first ten days—*i.e.*, during the period of poulticing and rest in bed—is composed of boiled milk, Leube's meat solution, and softened, unsweetened zwieback. The following week there is added to the dietary, soups made of rice or sago, thoroughly softened by boiling in milk with white of egg, raw or soft-boiled eggs, calf's brain, and boiled chicken. Other tender meats are gradually added, and after the fifth week the diet of health is resumed, although, as a matter of course, more than ordinary care should be taken to avoid indigestible articles of food.

The number of cases in which Leube has carried out this treatment is 556, of which 63 were private patients and 493 hospital patients; 116 were men and 360 were women; the proportion of women to men being, therefore, about 2 to 1. The ordinary mortality of gastric ulcer is about 13 per cent, of which 6 to 7 per cent is due to perforation, and 3 to 5 per cent to hemorrhage. Out of Leube's 556 cases only 12 died, *i.e.* 2.2 per cent, of which 6 died of perforation and 6 from uncontrollable hemorrhage. In 69 of the cases the method was not carried out in all its rigor, the patients leaving the hospital before the cure was complete. This leaves 424 cases, of which 314 (74.1 per cent) were cured; 93 (21.9 per cent) were improved; 7 (1.6 per cent) were not relieved; and 10 (2.4 per cent) died.

It may be objected that in some of these cases the diagnosis of gastric ulcer was incorrect. With reference to this point Leube states that in 46 per cent of his cases there was gastric hemorrhage, and further, that in only one case was his diagnosis of gastric ulcer refuted by autopsy. The case in question was a

hysterical woman who complained of great pain and tenderness in the epigastrium, and vomited blood. She died suddenly of pneumonia, and at the autopsy the mucous membrane of the stomach was found intact.

With such results as these, Leube's claim that in from 75 to 96 per cent of the cases of gastric ulcer surgery is uncalled for seems to be fully established. In 75 per cent surgery is meddlesome because this percentage is cured by a single course of the treatment above outlined. In the remaining 21 per cent, which represents the cases merely benefited by a single course of treatment, the method should be repeated once, twice, or even three times before considering the question of operation.

The author has employed Leube's method in modified form in a sufficient number of cases to convince him of its efficacy. His modification consists in nourishing the patient, during the first week of treatment, either entirely or partially by rectal enemata, and in the *pro re nata* employment of opium and its derivatives. He can see nothing but advantage in the judicious employment of opiates in gastric ulcer.

IODINE IN THE TREATMENT OF POST-OPERATIVE SEPSIS.

BURTENSHAW states in *American Medicine* of March 11, 1905, that the iodine treatment of sepsis during the puerperium was first proposed by Dr. T. J. Alloway in 1883. He advocated the introduction within the uterus of suppositories containing from .65 to 1.3 grammes (10 to 20 grains) of iodoform night and morning, "the idea being," as he said, "to replace the frequent and often unsatisfactory intra-uterine injection of antiseptic fluids." He reported three cases in which the patients were successfully treated by this method. In 1884 Dr. W. E. Boardman reported a successful case in which he had employed iodoform insufflation within the uterus. But to the late W. R. Pryor, of New York, belongs the credit of having placed this method of treatment on a scientific basis, which, in the opinion of the author, is unassailable from a deductive as well as from a resultant point of view, when our

present knowledge of the pus-producing organisms and their action is given due consideration. Pryor's last paper on the subject was published in the *New York Medical Journal* of January 23, 1904.

In patients in whom the constitutional symptoms are pronounced, or in whom it is suspected that the infection has passed beyond the uterus, he advocated thorough dilatation of the cervix, curetting of the uterus, irrigation with salt solution, and packing of the cavity with 10-per-cent iodoform gauze. He then opened Douglas's pouch and packed the pelvis with iodoform gauze of 5-per-cent strength. He removed the gauze from the uterus at the expiration of three days—usually it was unnecessary to renew it; that in the pelvis was permitted to remain in place a week, and was renewed at the end of that period. The iodine reaction usually was demonstrable in the urine of the patient in from three to five hours. Pryor reported thirty-seven cases in which this method of treatment was adopted. "Twenty-seven of the patients had not been operated on previously, and but one died; ten had been curetted before coming under observation, and three of these died."

The blood changes in septicemia are of extreme interest. While, as pointed out by many observers, the proportion of cases in which the pathogenic germs are demonstrable in the blood current is relatively small, there is no morbid condition known, with one exception, in which the destruction of the red cells is more constant. The average loss has been estimated by different observers as being from 200,000 to 1,000,000 a week in ordinary cases. Leucocytosis, as is well known, is not always present. Da Costa has pointed out that this is an extremely inconstant sign, as the blood in case after case of undoubted sepsis has been examined without finding any increase in the leucocytes above normal.

The pronounced affinity which the protoplasm of the leucocytes shows for iodine has been demonstrated many times. Goldberger and Weiss, in reporting the result of many microscopic examinations of normal and infected blood stained with a combination of iodine 1 part, potassium iodide 3 parts, and distilled water 100 parts, state that "in the case of normal

blood the protoplasm of the leucocytes is stained a pale yellow and the nuclei remain almost colorless; in all purulent conditions, and especially in puerperal sepsis, the protoplasm is stained a slight or intense brown, or contains numerous intensely stained reddish-brown granules, the latter change being the more common."

In a great majority of cases of puerperal sepsis the infection spreads from the uterus through the medium of the lymphatics. Pryor concluded that "that method of treatment which secures sterilization of the original wound and accomplishes the absorption by the infected lymphatics of a potent yet harmless antiseptic, if at the same time accompanied by such treatment as will promote the eliminative functions, will succeed best." In postoperative sepsis having its origin in the abdominal cavity it is probable that the blood-vessels play as important a rôle as the lymphatics in the dissemination of the toxins. It has been abundantly proved that iodine and its congeners, under certain well-defined conditions, exert a marked bactericidal effect on pathogenic germs, although in what way the agent directly influences the toxic products of germ activity is not known. Pryor has shown that if the pelvis is packed with iodoform gauze in puerperal sepsis, the absorption of the iodine is rapid, the growth of the germs at the point of development is inhibited, and the course of the infection is greatly shortened. These points being given consideration, the question naturally arises: In postoperative sepsis of abdominal origin is it not rational to suppose that iodoform introduced into the abdominal cavity will exert the same beneficial influence? It is well known that a person suffering from septic infection will tolerate vastly larger doses of iodine in one or another form without showing evidences of iodism than under normal conditions, and therefore, under these circumstances, if such a procedure is adopted there need be little apprehension of poisoning.

The author's experience with iodine in these cases has been distinctly disappointing; yet he is convinced that further development of treatment along the lines indicated will, in the near future, yield brilliant results. During the past year the

author has had three cases of postoperative sepsis in his practice, two of which resulted fatally. The first case was probably due to the use of defective ligatures, but the patient finally recovered, a result which the author attributes more to the degree of infection and to her robust constitution than to the curative measures employed. The infection in one of the fatal cases was traceable to the unavoidable soiling of the peritoneum from the rupture during operation of an enormous pelvic abscess; in the other case the source of infection was undiscoverable. It was in this case that the iodine treatment was given its most extended trial, and with absolutely negative results.

CHLORIDE OF ETHYL AS A GENERAL ANESTHETIC.

In the *Intercolonial Medical Journal of Australasia* of January 20, 1905, DANIELL gives the results of his use of this drug. He says that in the first stage some patients do not breathe at first in a natural way, due frequently to nervousness, or to some mistaken idea as to how they should breathe. If given correctly, the sensations are not very much unlike those of nitrous oxide—a feeling of tingling through the body, and singing in the ears. Most patients told the writer that they had no unpleasant sensations, and as a rule the loss of consciousness is so sudden that they have no time to define their feelings.

The second stage begins with loss of consciousness; excitement, either mental or muscular, is as a rule absent. The respirations become quicker and deeper; the color improves; the pupil begins to dilate, but is active to light; the conjunctival and corneal reflexes are both present. The eyelids sometimes show slight twitchings, and the eyeballs rotate, and may present the condition of vertical nystagmus. Swallowing movements are not infrequent, and there is slightly increased secretion of saliva and mucus.

The third stage is that in which the patient is deeply enough under to permit of the surgical procedure. It is not always easy, at first, to know when the patient has reached this stage, and a little experience in various types of subjects is necessary to insure satisfactory anesthe-

sia. It should also be remembered that, as in ether and chloroform, there are various degrees of depths of anesthesia, and it is by no means necessary to push the drug in some operations, although it may be so in others. Speaking generally, a patient may be considered to be under by the following symptoms:

The respirations become regular and automatic, and usually they are quicker and deeper than normal. All hesitating breathing has vanished. There may be stertor of varying degrees, from softly snoring, like deep chloroform narcosis, to a louder, as in some patients under ether. The full-blooded and plethoric subject and the obese are especially liable to noisy breathing; also those having enlarged tonsils, or any throat trouble, causing a narrowing of the upper air-passages; also heavy smokers with irritable and congested throats.

The eyeballs, which were during the second stage described as rotating, now become fixed in one position or another. They frequently turn downward or inward, and in some cases convergent squint is observed. It is not a bad plan to direct the patient to follow your finger with his eyes, without of course moving his head, your finger being slowly moved from side to side, about nine inches from the face. When the eyeballs become fixed, the eyelids generally close a moment after. It is as well to let him have a few more respirations after this before removing the mask.

Muscular relaxation is not altogether to be relied on, but it is a confirmatory sign. The arm will drop to the side if lifted up. If held out by the voluntary effort of the patient, it will be seen to gradually fall. Muscular rigidity may persist; this is generally found in strong, muscular men, alcoholics, heavy smokers, and generally those who take all anesthetics badly. But in the majority of cases, if the anesthetic is sufficiently pushed, muscular relaxation will follow.

The conjunctival reflex is the first to vanish, and is of some little use as a guide; the corneal reflex persists for a longer period, and in short cases may be permitted, especially in operations on parts not very sensitive. On the other hand, in operations on sensitive parts, it is as well to abolish this reflex; but it

should be remembered that it will persist in some cases although the patient is deeply under, and any attempt to abolish it would be putting the patient in danger of respiratory and consequent circulatory depression, due to an overdose.

Dilatation of the pupil, like the former, is not an infallible guide, but in the greater number of cases a dilated pupil attends this stage, especially in the early course of surgical anesthesia. In more prolonged administration the pupil comes down very much in size, even to normal. The pupil is very sensitive to peripheral stimuli, and is far larger in the anesthesia under consideration than any other, and to one used to the administration of chloroform alone it may be a little disconcerting.

The recovery, in the majority of cases, is without any unpleasant symptoms, and the patient is able to walk home and attend to his business.

DIFFUSE PERITONITIS—TREATMENT.

As the result of his experience, BLAKE (*New York and Philadelphia Medical Journal*, Nov. 19, 1904) has fixed upon the main points in the proper treatment of diffuse peritonitis. He has obtained the best results by early operation, rapidly performed, but not necessarily through a large incision; the least possible handling of the intestines (if they escape from the wound and cannot be returned they should be emptied through a small enterotomy incision); thorough lavage; and the omission of drainage. The principal features of the after-treatment are absolute rest for the alimentary canal and the exhibition of large quantities of fluids.

PYLORIC STENOSIS IN INFANTS.

SHAW and ELTING (*Albany Medical Annals*, January, 1905) say that pyloric stenosis in infants is not a rare condition and that its prognosis is grave. They report the case of a female child, eleven months old, which was cured by anterior gastroenterostomy after the method of Kocher. Their conclusions are as follows:

Pyloric stenosis in infants is of much more frequent occurrence than is commonly supposed.

Medical treatment of these cases has proved uncertain and unsatisfactory.

Surgical interference should be practiced before the strength and vitality of the patients have become seriously reduced.

Pyloroplasty and anterior gastroenterostomy are the operations of choice.

ACUTE INTESTINAL OBSTRUCTION—SURGICAL TREATMENT.

The first step in the surgical treatment of acute intestinal obstruction, according to BARKER (*Lancet*, September, 1904), is to see if the stomach has been emptied. The stomach-tube will often reveal the presence of a large quantity of matter even after vomiting. The stomach should be washed repeatedly before anesthetization.

The mouth and throat should be washed out with some antiseptic fluid, such as chlorate of potash, and a warm drink of brandy and water should be given if the stomach is empty. If the patient is very feeble, it is also sometimes of the greatest use to instil subcutaneously half a liter of a 5-per-cent solution of glucose or of normal saline. If glucose and normal saline are used together the first should be 2½ per cent and the salt .45 per cent. A rectal injection of warm saline solution and half an ounce of brandy is also desirable.

Further preparation includes all the precautions of asepsis. The less chemical germicides, however, used upon the skin once it has been cleansed the better. They should never be used within the abdomen.

Experience seems to show that local analgesia is better. For children and some nervous young people local analgesia is unsuitable, but this class of patients as a rule bear chloroform well. It is for the mature and particularly the aged that local analgesia is indicated.

When the abdomen is opened, search should be made first for a loop of empty bowel in the right iliac fossa, as a guide to the obstruction, which in the majority of cases is low down. This is the easiest way to find the point of stoppage.

The actual release of the obstructed bowel is a purely mechanical matter, but it appears easier to work from the empty bowel toward the distended portion. If

a band is found it is a simple matter to divide it. If an intussusception is present, it should be attacked from the distal end, and all pulling from the proximal should be avoided. These various procedures should be performed within the abdomen. Even in great distention it is better to draw forward a small portion of the most distended gut and slit it open over a basin, than to expose large tracts externally.

It must not be forgotten that the mere evacuation of gas and liquid feces revives the patient; in some cases the operation should go no further until the abdomen is emptied, but such cases are few.

Where several feet of bowel above the obstruction is distended, paralyzed, sodden, and discolored, it is better to make an extensive resection of the gut with its contents, followed by an enteroenterostomy, since shock is not proportionate to the length of gut removed. In one case, that of an old woman of seventy-eight, five and a half feet of gut was removed, and recovery was perfect under one dressing. The patient remained well four years after operation. The other case was that of a woman of fifty-two, with six and a half feet cut away. If a bowel be distended to only two inches in diameter every foot of it will contain more than a pint of putrid fluid.

Of course, if the case is a recent one where the bowel is not seriously damaged by the retained feces, and is manifestly sound at and above the seat of obstruction, evacuation without resection applies.

The method of drainage is an open question. Barker is in favor of closing the abdomen at once unless there be general peritonitis.

The after-treatment is of some importance. The patients should sit up in bed from the first as much as possible. They should lie down only on the side for sleep, to overcome the tendency to hypostatic pneumonia. They should begin at once to take a mixture of 10 grains of carbonate of bismuth three times daily, probably the best intestinal antiseptic. Albumen water, with one drachm of brandy, should be given from the first by the mouth in small quantities, and nutrient enemata and instillation under the skin of normal saline solution or five-per-cent solution of glucose is recommended as a routine. Half a liter morning and evening may be

given if necessary. Food may be given in small quantity early in cases where the bowel has been resected.

In many cases diarrhea is a very troublesome complication. It is not well to check this too much, but the bismuth plays a useful part in cleansing the gut and so arresting the complication.

In some cases, especially intussusception, the temperature rises to a high degree after liberation of the gut. Cold sponging and warm drinks have proved the best treatment for this. If the fever happens to be from pulmonary emboli or phlebitis, the best that can be done is to sustain the general strength with the usual stimulants.

SOME CATARRHS OF THE MIDDLE EAR TREATED WITH COMPRESSED AIR AND NEBULIZER.

It is deemed of great importance by BRONNER (*Lancet*, Nov. 5, 1904), in cases of middle-ear disease, to treat locally not only the mucous membrane of the middle ear, but also that of the tube and nasopharynx.

In this treatment he employs Lucae's double bag fixed on the end of a catheter, but he recommends the American compressed air apparatus in conjunction with a nebulizer. Practically any drug can thus be sprayed on to the mucous membrane of the Eustachian tube and middle ear, for any length of time, and under any pressure. Any solution can be used; if watery, then glycerin should be added. The most useful solvent is a hydrocarbon oil, such as chrismaline or paroleine.

When the drum is perforated, the liquid, looking very much like vapor, may be seen escaping by the external meatus. It also, of course, enters into the cavities and recesses adjoining the middle ear, and thus in cases of purulent otitis media it can be used to disinfect these regions, which are so inaccessible to ordinary treatment. When the air is manipulated to give up to 1000 vibrations a minute, this is found useful in breaking down slight adhesions of the drum, removing spasm of the tensor tympani muscle, and, among other things, dispersing any serum in the middle ear. The immediate result surpasses that obtained with the Politzer bag, and is more permanent. In some

cases the catheter is used several times at intervals of a quarter to half an hour, and often the hearing improves slightly after each application.

Many cases of so-called dry catarrh of the middle ear are not due to any affection of the mucous membrane at all, but to a primary disease of the osseous labyrinth. In such cases, naturally, the use of the catheter can do a great deal of harm. If sudden great pressure is applied, as with Politzer's bag or the bag attached to the catheter, the hearing and tinnitus may become worse. In doubtful cases the catheter is used with an iodine spray under very low pressure.

The compressed air can also be used in an ordinary coarse spray for numerous purposes—to apply a cocaine solution to the nares before the use of the catheter, or an astringent to the mucous membrane of the nares and nasopharynx, or a disinfectant (perchloride of mercury, peroxide of hydrogen, etc.) to the nares before and after any intranasal operation, or for the local treatment of laryngitis, tracheitis, etc.

Milligan advocates heating the air in the compressed form.

Donnellan has found that a previous application of cocaine with adrenalin often allows successful use of the bag where previously it had no effect.

RESULTS OF TREATMENT OF PERFORATED ULCER OF THE STOMACH.

BONHEIM (*Deut. Zeit. f. Chir.*, lxxv, 389) believes that statistics from one hospital are more reliable than those collected from the literature, and therefore publishes his own statistics of 16 cases in the last five years. The death-rate has steadily decreased, and although of the first 11 cases 7 died, the last 5 have recovered. He relieves the anemia due to dilatation of the abdominal vessels (vasomotor splanchnic paralysis) by intravenous injection of Ringer's solution (sodium chloride 8.0, potassium chloride 0.2, sodium carbonate 0.1, water 1000). In one case he injected 17 quarts in four days. Operation should be performed at once. After the discharge has been wiped away the peritoneal cavity should be washed out with normal salt solution. The perforation should be sought for,

and if found should be sutured in layers if stitches will hold; if not, a piece of omentum may be sewed into the opening. The ulcer should be excised. A gauze drain should be left extending to the place of perforation. The perforation is generally located on the anterior wall, near the lesser curvature and near the pylorus. There are generally other ulcers present.

RENAL CALCULUS—INDICATION OF PRESENCE BY X-RAYS AND A NEW METHOD.

It is the belief of LUCAS (*British Medical Journal*, Oct. 1, 1904) that the x-rays as a means of diagnosis in renal calculus are greatly overlauded. He gives at least two instances in his own experience wherein they failed. In the first instance the stoutness of the patient and the consequent great depth of the kidney from the surface and the small size of the stone accounted for the failure. The second patient was a thin male, however, but here the stone was a large branching phosphatic stone immersed in pus. From other experience it would seem that the pus within and the adhesions outside the kidney may have been the cause of this failure.

In this latter case also a test, termed by him the flexion and stamping test, gave negative results on its application by the deviser thereof, the author. It was successful in the first case.

This test should be found of service in doubtful cases. During extreme flexion of the thigh upon the abdomen some pressure is brought to bear upon the kidney, especially if the kidney is pressed down by the diaphragm in deep inspiration; the psoas muscle tends at the same time to displace the kidney forward and outward. When the knee is suddenly released, and the patient told to bring the heel down forcibly on the ground, the kidney loses its muscular support, and is taken at a disadvantage, so that it is exposed to a sudden shaking. This will often displace a movable stone from a calyx, and bring it into the sensitive lower part of the renal pelvis, and so start an attack of colic. Hemorrhage may also follow its employment as a test. The test succeeds relatively to the amount of movement imparted to the stone in the kidney, and to its impinging

on a more sensitive part than that on which it had been previously lying. It should be remembered that an unduly movable kidney may be shaken out of its bed by this test, and pain and colic may be induced in this way; but a movable kidney is to be detected by manual examination, and this fallacy can so be excluded.

EXPERIMENTAL EFFECTS OF CHLOROFORM ON THE KIDNEYS.

OFFERGELD (*Arch. f. klin. Chir.*, lxxv, 758) reports a series of experiments on rabbits in which the effect of chloroform upon normal kidneys and upon these organs after injury was determined. Narcosis prolonged for two hours always proved fatal either directly or after a few days. Autopsy showed marked fatty degeneration in the kidneys, liver, and heart. A series of experiments in which rabbits were killed at various intervals after a few minutes' narcosis showed that the fatty changes in these organs disappeared in about eight days. Pregnancy *per se* had no effect on these changes, but the hearts of the fetuses showed fatty change. If the renal artery on one side was tied, this organ showed no degeneration. If both veins or ureters were ligated, or any of the renal poisons given before narcosis, the effect was much increased.

If chloroform was given for a few minutes one day and after a few days again administered, the second narcosis always proved fatal. Chemical examination showed that the fat content of the liver was increased and that of all other parts lessened after narcosis. Offergeld believes that the injury to the kidney causes a nephrolysis, which itself causes death after several days.

EXSTROPHY OF THE BLADDER—URETER IMPLANTATION BY MAYDL METHOD.

THOMPSON (*Texas Medical News*, October, 1904) has treated three cases of exstrophy of the bladder, one by the operation of Maydl, preceding the account of which he takes occasion to review the literature concerning the implantation of the ureters in the rectum. The later statistics on this operation give a mortality of 18 per cent, though Maydl only seven years

after the first operation had in that time performed twenty operations with only three deaths, or a mortality of 13 per cent. This latter, in view of the difficulties encountered and the delicate nature of the procedures, Thompson considers to be little short of remarkable.

The case reported is that of a white child three years of age, suffering from complete extroversion with more or less pronounced protrusion of the posterior bladder wall. There was no sign of the navel. The recti muscles and pubic bones were wide apart. There was irregularity in the position of the orifices of the ureters, and that on the left side was so narrow that it admitted the urethral catheter with some difficulty. Urine was collected from each ureter and was found normal in every particular. Maydl's operation being decided upon, it was deemed advisable to perform it in two stages.

At the first operation the ureters were dissected out of their beds for about an inch and a half, and the ends sutured to the margin of the hymen.

The second operation was performed about two weeks after. The ureters were separated from one another and catheterized, the catheters being fastened in by temporary ligatures. The peritoneal cavity was opened in the median line and the sigmoid flexure brought out through the abdominal wound. Two quadrilateral flaps consisting of the serous and muscular coats were reflected from the convex surface of the sigmoid flexure. The hinges of the flaps were on the lateral aspects of the gut, and the meeting point was the middle of the anterior muscular band. A small opening was made in the mucous membrane at the lower end of the denuded area. The catheters were withdrawn from the ureters and a stitch placed through the contiguous sides and knotted to hold them in contact, care being taken not to enter the lumen. A silk thread armed with a needle at each end was passed through a portion of the wall of each ureter, avoiding the lumen. Then each needle was passed through the opening in the mucous membrane of the gut and made to penetrate the intestinal wall from within outward, a little distance apart, emerging on the peritoneal coat of the bowel about one inch below the opening. Both ends of the thread were dragged on, and the ure-

ters pulled through the opening until the ends lay in contact with the bowel at the point of the penetrating threads. Then with fine silk the edge of the opening in the gut was united to the sides of the ureters. For this purpose very fine curved cleft-palate needles (Lane's pattern) were used. The muscular flaps were then sutured together carefully over the ureters; care being taken to apply the upper border of the flaps around the entering ureters. Lastly a piece of omentum was carefully sutured over the whole wound area. The controlling loop of silk was then withdrawn through the gut wall.

The operation was tedious, taking about one hour and a half. Shock was profound, and for forty-eight hours it hardly seemed possible for the child to recover. No evacuations from the rectum were seen until the day after the operation (almost twenty-four hours), when, in response to an enema, a copious discharge with a urinous odor was obtained. This gave the test for the urea. From this time urine was passed constantly, and although the child was much collapsed and extremely weak for five or six days she showed no further bad symptoms.

The patient was brought for inspection a year later. The physical condition was excellent. There was a slight degree of ulceration around the edges of the original bladder boundary. The cicatrix, which had been grafted by Thiersch's method, still protruded on exertion and had to be supported by an abdominal binder.

Under ordinary conditions the child could retain the urine in the rectum for four hours during the day and nine hours when asleep at night.

EFFECTS OF RADIUM ON CANCER.

EXNER (*Deut. Zeit. f. Chir.*, lxxv, p. 379) states that radium affects the tissues to the depth of half an inch only, and that, therefore, large tumors must be removed and the ulcerating surface treated. The changes after exposure to radium are similar to those after x -rays, consisting mainly in increase of fibrous connective tissue and fatty degeneration of blood-vessel walls. Scholtz has reported two cases of cancer of the skin treated by radium which show no recurrence after nine months.

TREATMENT OF SCAPULUM ALATUM.

DUVAL (*Revue de Chirurgie*, xxv, p. 41) after discussing the operations proposed for this condition describes his own method, which consists in removing a large part of the subscapularis muscle from near the dorsal border of the scapula, stripping the periosteum from the denuded portion and from the corresponding part of the sixth and seventh ribs, and fastening the scapula to these ribs by silver wires passed around the rib and edge of the scapula and through a hole in this bone near the edge. A portion of the erector spinæ muscle is then freed from its lower attachments and sewed to the periosteum of the scapula. Of three cases treated in this way one was completely successful; in the others the stitches tore through the scapular margin.

GUNSHOT WOUNDS IN TIME OF PEACE.

KRONER (*Archiv f. klin. Chir.*, vol. lxxv, p. 643) publishes a very interesting account of the gunshot wounds which have been treated in his clinic in the last ten years. He takes up the cases according to the part injured, beginning with the head, which was the part involved in more than half the cases. He insists that such wounds are to be looked upon as aseptic, and that no cleansing or washing out of the deeper parts should be made without definite indication. The ball may safely be left *in situ*. After cleansing of margins the wound should be dressed with sterile or iodoform gauze, or, if very small, sealed with collodion. It should never be probed, nor should the ball be sought by anything except the x -ray.

It is necessary to trephine only in case the ball has injured one of the larger vessels in the brain and there is continuance of hemorrhage, as shown by increase of pressure symptoms. Otherwise the skull should not be exposed even if fracture is recognized. Injuries of the face are only important on account of the deformity they may produce.

Wounds in the neighborhood of the heart are next in frequency, although the ball generally passed well to the left of that organ. If the heart itself is injured, the wound proves rapidly fatal. If the pericardium only is injured there is apt to be hemopericardium, but the treatment is

passive unless the heart is pressed upon, in which case resection of a rib should be performed to allow of complete emptying. The trocar is to be avoided. If the lung is injured there is generally hemoptysis or hemopericardium. The treatment is passive unless an intercostal artery has been severed or the exudate is not promptly absorbed or becomes purulent, in many of which cases resection of rib must be performed.

In abdominal wounds laparotomy should not be performed unless injury of internal organs is shown by increasing distention. Incision is best made in the middle line, and all organs must be carefully examined after washing out the abdomen with normal salt solution. Wounds should be sutured, and if the water used in flushing returns clear no drainage is required. Wounds of the limbs heal promptly unless hemorrhage or phlegmon occurs. Tetanus is the usual cause of death in fatal cases.

HYPERTROPHICA—TREATMENT BY GALVANOCAUTERY.

BLOEBAUM (*Münchener medizinische Wochenschrift*, No. 52, 1904) treats cases of advanced acne rosacea of the nose as follows:

If there are only a few large veins visible at the root of the nose, he merely pierces each of these with a galvanocautery needle, but if there are many he punctures the entire skin of the nose with points so close together that no vessel can be missed, to a depth of $\frac{1}{2}$ to $1\frac{1}{2}$ millimeters. The entire skin soon sloughs off and the resulting raw surface is trimmed into shape as necessary by the cautery, and dressed with an antiseptic powder (bismuth, dermatol). The skin heals in about twelve days. This method has given better results than operations with the knife or electrolysis.

FLOATING KIDNEY—NEW METHOD OF TREATMENT.

SCHMITZ describes in the *Wiener klinische Wochenschrift*, No. 47, 1904, a new method for treating floating kidney.

After reposition of the kidney, the patient is put in a standing position. Then an adhesive strip, 5 to 8 centimeters wide,

and of ample length, is applied tightly to the abdomen, beginning in the groin of the sound side, crossing to the opposite groin, then upward around the crest of the ilium to the back.

This exerts an inward and upward pressure upon the abdominal viscera. The influence extends to the kidney, and keeps it in place until a sufficient deposition of perirenal tissue occurs to make artificial support unnecessary. Increase of body weight, appetite, and digestive power is noted, and it gives to the patient a sense of support for which he is grateful.

PREPARATION OF CATGUT.

MIYAKE describes in the *Centralblatt für Chirurgie*, No. 45, 1904, a method of preparing catgut which has some interesting features.

The catgut is stretched tightly over a glass plate tanned in five-per-cent watery extract of quebracho, washed for a short time in water, subjected to the action of a four-per-cent formalin solution for twenty-four to forty-eight hours, washed in running water for twenty-four hours, boiled in water for ten to fifteen minutes, and stored in a mixture of absolute alcohol with 5-per-cent glycerin and four-per-cent carbolic acid.

In experiments on dogs this suture material in aseptic wounds remained intact for sixty-five days, and was absorbed after eighty-three days. In infected wounds it was absorbed after thirty-two days.

CANCER OF THE TONGUE—TREATMENT.

FAURE (*Presse Médicale*, p. 801, 1904) believes in early and radical operation in a case of cancer of the tongue. With regard to technique, he does not consider preliminary tracheotomy necessary, but thinks the instruments should be at hand to perform it instantly if demanded. If the disease seems purely unilateral, it is not necessary to remove the cervical lymph glands on the opposite side. The maxilla should be spared if possible. If the conditions are favorable operation *en bloc* is the choice, but if the state of the patient is not good this method has a much higher mortality. If the cancer is limited to the tongue, this should be first

removed without injuring the floor of the mouth, and after twelve to fifteen days the neck is opened from in front, and the cervical glands removed. The danger of this method is much less. "It is better to save the patient by two operations than to kill him under the pretext of sparing one." Rarely it will be possible to do this double operation at one time.

SCIATICA—INJECTION TREATMENT.

LANGE (*Münchener medicinische Wochenschrift*, No. 52, 1904) after trying, but without success, various medical and surgical measures for the relief of sciatica, finally obtained complete relief in five cases. He employed a solution of eucaïne B. in .8 per cent salt solution, injecting it under the skin near the sciatic notch, until a large wheal formed. The needle is then pushed down, until a jerking of the leg showed that the nerve had been touched. Then 70 to 100 cubic centimeters was rapidly injected. Mild local pain lasted for two or three days. In three of his cases a second injection was required for complete cure. Functional and permanent relief was almost instantaneous in all cases.

ABSCESS FOLLOWING TYPHOID FEVER.

HARBOLT in the *Centralblatt für Chirurgie*, No. 44, 1904, reports a case of typhoid fever, occurring in 1881, which was followed by the development of abscesses at varying intervals until 1903. The abscesses showed the presence of typhoid bacilli, and the blood gave a positive and most intense Widal reaction.

PROSTATIC OBSTRUCTION—OPERATION.

With a loss, so far, of only two patients out of thirty-four operated upon, SYMS (*Journal of the American Medical Association*, Nov. 5, 1904) justly considers his method of operation worth detailing.

The patient, anesthetized with chloroform or ether, or with spinal cocainization, is placed on a short inclined plane, so as to be in a very extreme lithotomy position. A Syms staff is introduced in the bladder, and a single incision is made, opening the perineum down to the mem-

branous urethra. The knife is passed into the groove of the staff, and the membranous urethra opened throughout its length. A probe or curved director is passed to the groove of the sound and thence into the bladder as a guide. Then the staff is removed, and the index-finger is pushed into and through the prostatic urethra, fully dilating it, into the neck of the bladder. The bladder is then thoroughly irrigated with sterile water, the Syms rubber retractor is introduced into the bladder and fully dilated and clamped. Sufficient traction is now made on it, the wound is dilated with the finger, the tissues being pushed posteriorly and to one side so that the sheath of the prostate is exposed, and a free vertical opening is made with scissors. The prostate is then rapidly enucleated by the index-finger. If the proper line of cleavage be found, this may be rapidly and almost bloodlessly accomplished. As soon as the prostate is removed, a large perineal drainage-tube is introduced into the bladder through the prostatic urethra, and the wound and the space from which the prostate was removed are packed with iodoform gauze. This packing is made tight and firm in proportion to the amount of oozing encountered. The wound is temporarily sutured over the gauze, and the operation is complete. Patients are usually in bed within half an hour from the time the operation is commenced.

Concerning preservation of the ejaculatory ducts, certain prostates produce their obstruction entirely on account of anatomic changes which take place in the isthmus or so-called middle lobe. In the majority of cases the obstruction is due to the lateral lobes, which distort or compress the bladder orifice. In certain cases it would be impossible to remove the obstruction without removing the portion of prostate which contains the ejaculatory ducts, but in no case is it necessary to remove any material portion from this region. As to the ultimate preservation of these ducts, and as to the ultimate preservation of the sexual function, we would say that this whole question must be more or less problematic. In a number of cases epididymitis has ensued as a postoperative complication, usually occurring when healing was nearly complete, sometimes occurring after complete healing. This

would certainly show that infection had taken place from the urethra through the natural channels to the epididymis, and therefore that these ducts must have remained patent. In elderly patients, and, in fact, in the majority of prostatics, it would be difficult to arrive at a satisfactory conclusion regarding the preservation of the sexual function.

Most of the recent patients have been up and about at the end of forty-eight hours, the gauze packing having been removed twelve to twenty-four hours after the operation, and the drainage-tube usually at the end of forty-eight hours. From then on the patient is better out of bed than in. The normal bladder function has been speedily reproduced in all of these later cases.

SUPRACONDYLOID AMPUTATION AT THE KNEE—MODIFICATION.

In the *Centralblatt für Chirurgie*, No. 45, 1904, SILBERMARK describes a modification of the Gritti supracondyloid amputation at the knee.

The incision is made about two finger-breadths below the lower border of the patella, and the patella ligament is then divided near to its insertion at the tibial tubercle. The ordinary supracondyloid amputation is carried out, the sawn surfaces of the patella and femur brought into contact, and then by means of two strong catgut sutures the stump of the ligamentum patella is fastened to the central stump of the biceps femoris and semitendinosus muscles.

This modification provides greater security of contact for the patella and femur.

FEMORAL HERNIA—NEW OPERATION.

A new radical operation for femoral hernia is described in the *Centralblatt für Chirurgie*, No. 44, 1904, by HAMMESFAHR.

After the hernial sac is freed and reduced, he lays bare the crest of the horizontal portion of the pubes, near the crural canal, incises and reflects back the periosteum for four to five millimeters on either side of the crest, and through this bared portion of the bone from below upward bores three holes, one in the region of but not too near the vein, another toward the median line, and the third mid-

way between these two. Through these holes are passed strong silk sutures armed on the upper ends with needles. By means of these Poupart's ligament is tightly sutured to the pubic crest. This procedure effectually closes the crural canal.

PUERPERAL SEPTICEMIA, WITH SPECIAL REFERENCE TO THE VALUE OF ANTISTREPTOCOCCIC SERUM.

After discussing the nature, bacteriology, and symptoms of puerperal septicemia, RAW (*Liverpool Medico-Chirurgical Journal*, January, 1905) dwells on the value of antistreptococcic serum in this condition. Twenty-seven of his 61 cases showed the streptococcus pyogenes, and it is only when this organism is present that the serum is of value. Its therapeutic effect is marvelous, the temperature falls, the patient perspires and often goes to sleep, while the pulse-rate is much decreased. He offers the following conclusions as the result of seven years' observations:

Streptococci must be demonstrated by the microscope, and confirmed, if possible, by cultures, before the serum is used.

The serum must be used in an early stage of the disease if its full benefit is attained.

The doses should be large and repeated often.

NON-SUPPURATIVE DISEASES OF THE MIDDLE EAR—TREATMENT.

At the seventy-second annual meeting of the British Medical Association (*British Medical Journal*, Nov. 5, 1904) PRITCHARD opened a discussion upon the treatment of non-suppurative disease of the middle ear.

In the course of his observation he classifies this affection as follows: (1) Acute non-suppurative otitis media. (2) Early stages of chronic non-suppurative catarrh. (3) Advanced stages of the same. (4) Middle-ear adhesions the result of former acute inflammation. (5) Sclerosis resulting from disease of the bony capsule enclosing the internal ear, and forming the inner wall of the tympanic cavity, which is not considered catarrh at all.

As to the treatment of the first, it is advised that mothers be taught to put mus-

tard leaf behind the ear instead of a septic onion into the external meatus; thus fewer cases would run on to suppuration.

In the earliest stages gentle politzerization (not catheterization) will often relieve the pain at once, and tend to cut short the attack. Counter-irritation behind the ear is always most valuable, and will often arrest the otitis and relieve the pain. Instillations are only occasionally advisable. When they are used, they should be strong anodyne solutions—for example, cocaine or morphine—in an antiseptic medium.

Heat in the form of very hot fomentations or hot bran bags is very useful. Leeches in front of the ear and below it are valuable in very acute cases.

Incision of the membrane is called for when there is marked bulging of the membrane. The meatus must be purified, and afterward dressed antiseptically to avoid suppuration.

Purgatives are nearly always necessary. Phenacetine or antipyrin may be given to relieve the pain. Pharyngeal treatment is usually required, but nasal douches or irrigations must be avoided.

The after-treatment should include politzerization. This will restore the hearing and prevent adhesions. If adenoids are present they must be removed.

As to the treatment of the early stages of chronic non-suppurative catarrh, in which there is exudation into the mucous membrane and from its surface, hence stenosis of the Eustachian tube and more or less fluid in the tympanic cavity, politzerization is preferable to catheterization. This should be repeated at intervals of one, two, or three days, according to the relief obtained as ascertained by the amount of improvement to hearing. It must not be continued when it increases the deafness.

Incision of the membrana tympani may be practiced if there is much fluid in the tympanic cavity, but this is practically a rare condition. The operation should, of course, be performed antiseptically.

Local medicinal treatment is most valuable. Sterile alkaline nasal irrigation—e.g., borax and sodium bicarbonate—is to be preferred to the nasal douche, as the latter will occasionally produce acute otitis. Mild astringent sprays are often beneficial. Inhalations of pine oil.

eucalyptus oil, or still better, of fumes of ammonium chloride, are also valuable.

Adenoids and also enlarged tonsils, if present, must be operated on; and any nasal stenosis must also be removed to allow of free nose breathing.

Climatic treatment is important. Damp situations, such as river valleys of gravel with clay subsoil, should be avoided, and high, dry, and sunny positions should be sought. Warm and well drained seaside resorts are good, whereas cold, damp seashores with northern aspects must be avoided. High sunny alpine valleys are often very beneficial; but on rapidly descending from these Valsalva's inflation, should be practiced. Early and continued treatment of these stages of catarrh is most important, and will often prevent the advanced stages.

The treatment of advanced chronic middle-ear catarrh is much less satisfactory on account of the adhesions causing retraction of the membranes and fixation of the ossicles.

Catheterization is often preferable to politzerization, but the value of courses of repeated inflations has been much overrated. Patients must be warned against the constant recourse to Valsalva's method of inflation; but, cautiously employed, it is of value. Gentle suction by means of Delstanche's masseur is occasionally of value, but may be easily overdone. The Eustachian bougie has been overrated.

All operations in this division have proved futile.

As to local medical treatment, nasal irrigations of sterile alkaline and saline solutions are of much value. Inhalations of the ammonium chloride fumes, with cautious Valsalva's inflation to introduce them through the Eustachian tubes, form a most valuable treatment, but long-continued use with intervals of rest is necessary. Injections through the Eustachian catheter are much employed by some surgeons, and are occasionally of value. Probably a sterile solution of sodium bicarbonate is the most efficacious.

Occasionally, when the mucous membrane is glazed and dry, small doses of potassium iodide with ammonia, so as to produce slight symptoms of coryza, combined with some form of inflation, will yield excellent results. Turkish baths

are of value in some of the less advanced cases.

Operative interference in middle-ear adhesions of old standing has as yet signally failed.

Sclerosis appears to be hopeless no matter what the treatment. The best that can be done is to keep up the general health.

Though in the advanced stages of chronic catarrh the aural surgeon can do little to cure the complaint, he should not forget that he can do much for the general comfort of the patient, and often even a very little is a great gain in this matter to a deaf patient.

Bronner, discussing the same subject, did not agree with Pritchard regarding the use of the catheter. He considered it infinitely superior to politzerization. It should not be used with a Politzer bag, in which there is risk of damage to the drum membrane—it should be used with gentle air pressure, which can be regulated. Patients should not be allowed to use the bag themselves, nor Valsalva's method.

Natier (Paris) exhibited a system of tuning-forks which he employs in treatment, on the basis that deafness is a deficiency in the normal hearing power.

Downie confined his remarks to cases of old-standing sclerosis. Lubricants applied to the tympanum often help in the movement of thick sclerosed membranes combined with Valsalva's method of inflation. This latter should always be done gently and quickly and not frequently. The high-frequency current had not been beneficial in his experience.

Pegler, who had opportunities of watching cases of effusion into the tympanic cavity where he was in doubt as to the benefit of puncture, had found that if the fluid were left alone it became absorbed, and if the hearing were carefully tested afterward there was little alteration in the deafness compared with that before, and the patients were thus saved the slight risk of operative interference.

Spicer pointed out that what are termed colds in the head should be attended to, to discover whether they may not be signs of an inadequacy in the size of the nasal channels to admit the air required by the organism without undue force and speed during the act of inspiration.

Waggett found four grains of carbolic acid to one ounce of glycerin a very valuable anodyne in myringitis.

Shaw notes that for relief of pain there is nothing better than 10-per-cent solution of carbolic acid and cocaine in water. As he believes it impossible to tell beforehand in what cases injections into the tympanum are beneficial, he informs the patients of this, and then tries the effects for six weeks, once a week. He uses parolein with menthol or thymol. If there is no improvement he does not persist with the treatment at the end of six weeks.

Hill tries in sclerosis the effect of Dels-tanche's masseur. This often relieves the tinnitus, and occasionally improves the hearing for conversation.

TWO CASES OF EXCISION OF GASSERIAN GANGLION FOR NEURALGIA—OPERATIONS 1896—NO RECURRENCE.

HARRISSON (*Liverpool Medico-Chirurgical Journal*, January, 1905) details two cases which are of special interest because of the long postoperative immunity from pain.

The first case was that of a laborer, forty-five years of age, who had suffered from right-sided neuralgia in the distribution of the fifth nerve for five years. After two operations upon the course of the nerve, which failed to afford permanent relief, the Gasserian ganglion was removed. The second case, forty years old, had been suffering three years. The primary operation was excision of the Gasserian ganglion.

In neither case has there been any recurrence, although it is eight years since operation. The author prefers the temporal to the pterygoid route.

INOPERABLE CANCER—TREATMENT BY HYPODERMIC INJECTION.

Encouraged by the results of hypodermic medication in various complaints, SHAW-MACKENZIE (*Medical Press and Circular*, Oct. 19, 1904) decided to give it a trial for inoperable cancer.

For years Webb, of Melbourne, has been successfully treating cases of inoperable cancer by hypodermic injections of soap solution. Unaware of the exact dos-

age, however, Shaw-Mackenzie began the injections with 5 minims of a one-per-cent solution, increasing by 5 minims on alternate days to full dose of 60 minims every fourth day. Amelioration was obtained in all the cases, chiefly in the direction of decrease of tumor, diminution of fetor and discharge, and cessation of pain. The injections are given into the subcutaneous tissues, chiefly into the outer surface of the upper part of either arm alternately, or of the chest in the neighborhood of the growth. They are not altogether free from some smarting or pain, which, however, soon passes off, or is obviated by previous injection of eucaine. The soap solution readily passes through an ordinary fine steel needle, and the same details of antisepsis and local anesthesia before insertion of the needle are followed as in the case of the Chian turpentine injections.

TORSION OF THE SPERMATIC CORD.

FIRTH (*Bristol Medico-Chirurgical Journal*, December, 1904) reports in detail a case of torsion of the cord, and gives a résumé of the history of the disease together with the treatment. Between 40 and 50 cases have thus far been reported. The methods of treatment available are as follows:

1. Detorsion by taxis.
2. Detorsion through an incision.
3. Detorsion, with fixation of the testis in the scrotum (orchidopexy), including transplantation if the testis is imperfectly descended.

4. Castration, immediate or secondary.

Detorsion without fixation of the testicle is not ideal treatment, for it leaves the patient liable to a recurrence of the trouble. Detorsion with fixation of the testicle in the scrotum in such a way that recurrence will be rendered impossible is the method of choice, if it can be satisfactorily carried out. Immediate castration is required, first, if the testicle has become infected and is gangrenous; and secondly, if detorsion and orchidopexy are found impracticable or have been tried and have failed. If a non-infected hemorrhagic testicle is left after detorsion and the wound remains aseptic, a portion of the gland at least may survive to be of use in the economy. If, however, the wound becomes septic, gangrene of the

testicle will almost certainly follow, and secondary castration will become necessary.

DIFFICULTIES OF ANESTHETIZATION AND THEIR CORRECTION.

PEDERSEN (*Medical News*, Dec. 31, 1904) advises the use of the mouth-gag and tongue forceps to keep the pharynx open. Restraint during the period of excitement should be very gentle, as otherwise the violence of the patient will be increased. Cough is treated by removal of the anesthetic until the attack ceases, after which it is cautiously pushed. Stertor during etherization, due to valve-action between the soft palate, pharynx, and tongue, or to mucus in the throat, can be avoided largely if the mouth is held open and the tongue kept forward. Retching and vomiting can be controlled by rapid and steady deepening of the narcosis. The patient should be kept in Rose's position. The failure of respiration is the chief danger. A set of tracheotomy instruments should always be at hand. In case of nephritis the chest should be elevated by a sand-bag under the shoulders. Operations on the thorax and abdomen may cause reflex arrest of respiration, and if this occurs the operation should be suspended. Impending circulatory failure may be discovered early by testing the capillary efficiency. This is done best by squeezing the blood out of the end of the finger or out from under the finger-nail and observing the time required for its return. If it returns slowly, stimulation should be given at once.

The author thinks that proper care during the first twelve hours after administration is equally as important as the administration itself. The average patient should be able to talk coherently thirteen minutes after the anesthetic has been discontinued. It is best, if the pathological conditions permit, to put the patient on his side immediately after operation. This allows the tongue to drop forward and keeps the throat free. The patient should be watched by a competent person after the anesthetic is removed, so that proper treatment may be instituted if such is needed. Copious drafts of hot water should be given, to avoid dry retching, and at the same time wash out the

stomach if the patient vomits. The patient should be heavily covered, to encourage perspiration and render less likely congestion of the lungs and kidneys.

ANTISEPTIC TREATMENT OF THE PUERPERAL WOMAN.

KOLIPINSKI (*Medical News*, Dec. 31, 1904) decries the use of the vulvar pads which have recently been employed extensively in the puerperium. They interfere with drainage rather than facilitate it. Adherence to the vaginal douche is recommended. In this way the discharges, as well as any necrotic tissue or other poisonous material, are constantly kept washed out of the genital tract, and there is very small chance of infection, even though the most minute details of asepsis are not employed. A gallon of tepid boric acid solution made up at the rate of $1\frac{1}{2}$ drachms of the acid to the pint of sterile water makes a satisfactory irrigation fluid. This is repeated three times daily for a week and then discontinued.

MASTOID OPERATIONS—A REPORT OF 281 CASES.

HASTINGS (*American Journal of the Medical Sciences*, January, 1905) reports upon 281 mastoid operations done at the New York Eye and Ear Infirmary. Of these 164 were for mastoiditis following chronic suppurative otitis media, 25 were secondary to former unsuccessful operations, and 48 were for the purpose of curing chronic ear disease where no symptoms of suppuration in the mastoid existed. In 2 cases meningitis occurred and was followed by death. The lateral sinus was uncovered and found normal in 69 operations. In no case did harm result from the exposure. In 8 out of 9 cases in which the sinus was accidentally opened no harm resulted, but in one case sinus thrombosis ensued. After a course of seventeen days of irregular fever, sweats, foul expectoration, and progressive exhaustion, death occurred. In 9 cases thrombosis of the lateral sinus existed before operation; of these 9 cases 5 died and 4 recovered. Of the 4 cases which recovered, in 2 the internal jugular was excised, and in the other 2 only the

sinus itself was operated upon. The author infers from the history of these cases that in every mastoid where the involvement is extensive and where the sinus groove is found to be necrotic, the sinus should be uncovered and thrombosis looked for; also, that incision of the sinus wall is in some cases necessary in order to diagnose thrombosis. The total number of deaths was 17.

ANTHRAX SUCCESSFULLY TREATED BY SCLAVO'S METHOD WITHOUT EXCISION.

BOWLBY and ANDREWS (*British Medical Journal*, Feb. 11, 1905) report the case of a man thirty years of age with a characteristic lesion of anthrax on the forehead, from which virulent anthrax bacilli were obtained, cured by subcutaneous injection of 40 cubic centimeters of Sclavo's serum. The temperature and pulse quickly fell to normal and the local symptoms subsided; also subsequent bacteriological examinations failed to reveal the bacillus in the lesions. Excision was not practiced.

This case and another one previously reported by the same authors are the only ones in Great Britain in which reliance has been placed upon the serum alone. In both cases the results were good and confirmed the favorable reports from Italy.

LARYNGEAL TUBERCULOSIS: ITS TREATMENT.

BARWELL (*Edinburgh Medical Journal*, February, 1905) calls attention to the fact that laryngeal tuberculosis is a very common disease. It has been estimated that 50 per cent of cases dying of phthisis show it at post-mortem, and that one-half of these cases could be recognized clinically. The general treatment should be that instituted for the disease in other parts of the body. Only a soft whisper should be used in speaking, so that the larynx may be rested. As a palliative a laryngeal spray of a few minims of five-per-cent cocaine solution or an insufflation of morphine $1/16$ of a grain, with 2 grains of starch or 3 to 5 grains of orthoform, should be given half an hour before meals. The cough and catarrhal condition of the upper air-

passages should receive appropriate treatment. The remedial treatment is best applied in the form of pigments, of which lactic acid is the best and may be used in 40- to 50-per-cent solution, gradually increased to 75-per-cent. The lesions themselves are curetted when there is much infiltration and deep or extensive ulceration. In some cases more extensive operations, as tracheotomy, thyrotomy, or partial laryngectomy, must be resorted to. The author's latest reports show that 44 cures have been obtained out of 211 cases. Tuberculous laryngitis complicated by syphilis of the larynx or by pregnancy does badly.

THE SUCCESSFUL TREATMENT OF FOREIGN BODIES WHICH HAD BEEN SWALLOWED BY THE INTERNAL ADMINISTRATION OF COTTON-WOOL.

BELL (*Liverpool Medico-Chirurgical Journal*, January, 1905) reports two cases of prompt passage by the bowel of a foreign body, swallowed by a child, brought about by administration of cotton-wool. The object in the first place was a gold brooch, and in the second a brass knob from a bedstead. The knob had been in the stomach three days before the cotton-wool treatment was instituted. In each case the foreign body was passed the morning after the treatment, although in the case of the knob castor oil and large amounts of food had been given without success. A small handful of absorbent cotton was employed in each case. It was given mixed in bread and milk and in jam sandwiches. The object in each case was passed enveloped in cotton.

ACUTE PELVIC PERITONITIS ASSOCIATED WITH GONORRHEAL SALPINGITIS—THE DIFFERENTIAL DIAGNOSIS AND TREATMENT.

ANSPACH (*Proceedings of Philadelphia County Medical Society*, Dec. 31, 1904) in an interesting article on this subject says that peritonitis due to the gonococcus is usually confined to the pelvis, but that it may rarely become general. The pelvic variety is seldom fatal. It bears a close resemblance to appendicitis, and it is extremely important to be able to differentiate between the two because the latter condition requires opera-

tion, whereas the former may be successfully treated without operation. Anspach's differential table is as follows:

GONOCOCCUS PELVIC PERITONITIS.

History.—Leucorrhea or vesical irritability soon after marriage or suspicious intercourse.

Onset.—At or directly after a menstrual period.

Pain in lower abdomen—worse perhaps on one or other side.

Gastrointestinal Symptoms.

—Nausea, vomiting, constipation, less marked.

APPENDICITIS.

History.—Previous similar attacks. Habitual over-eating, chronic intestinal indigestion.

Onset.—After indiscretion in diet.

Pain beginning in epigastrium, not well localized at first, later localized to appendiceal region.

Gastrointestinal Symptoms.

—Nausea, vomiting, constipation, etc., more marked.

In general gonococcal peritonitis operation is advisable. If in the course of pelvic peritonitis of gonorrheal origin, distention, vomiting, tenderness, rigidity, diminished peristalsis, and the facies of septic intoxication appear, operation should be done.

TUBERCULOSIS OF THE KNEE-JOINT.

THOMSON (*Dublin Journal of Medical Science*, Jan. 2, 1905), after giving a detailed account of the older methods of treatment of a tuberculous knee-joint, discusses quite fully the method which he has selected as the best, namely, excision. Although this operation has been almost, if not quite, abandoned by many surgeons, he adheres to it as the operation of choice. Of 78 excisions he has lost but two cases. The age of his patients ranged from four to forty-seven years, and the cases have been of all degrees of severity. Thomson used a flat amputation saw with movable back. Every particle of diseased tissue should be removed, especially that in the long pouch under the quadriceps, into which a two-inch longitudinal incision is made to allow free access and drainage. The operation wounds are swabbed with pure carbolic acid, then washed out with absolute alcohol, and the cavity is drained toward the popliteal surface, the tubes being removed in forty-eight hours. The bones are held together by two dowel-pins which are carried through the tibia and into the femur, being made to cross like the letter X. These pins are allowed to protrude about two inches from the points of insertion and are easily and painlessly removed in three or four weeks. The dressing consists of a specially devised

hoop-iron splint $1\frac{1}{2}$ to 2 inches wide extending over the buttock downward to the heel and forward along the sole; a similar splint is used in front. These splints are made to conform to the irregularities of the limb. They are held in place by ordinary bandages padded with cotton. The pins, together with this method of dressing, render the leg rigid and free from movement at the site of excision. In bed the leg is swung in a strong cradle. The patient is able to sit up with or without a bed-rest on the third day.

Thomson does not resort to primary amputation unless there is strong indication therefor, although twice he has done amputation secondarily because of non-union. In the young the epiphysial lines should be avoided in order to prevent shortening due to lack of growth.

THE EFFECT OF TUBAL ABSCESS UPON THE POSITION OF THE URETER.

YOUNG (*Boston Medical and Surgical Journal*, Feb. 16, 1905) after giving the results of his investigations with abscesses of the Fallopian tubes in the living subject and upon the cadaver, and discussing at some length the etiology, thus sums up what he has endeavored to make manifest:

That small collections of pus in the Fallopian tubes do not displace the ureters.

That larger collections displace the ureters: (a) outward generally, whether the ureter is above or below the mass; (b) downward rarely, on to the posterior cul-de-sac.

That such displacements are probably due to (a) traction upon the infiltrated broad ligaments by the distended tubes, the ureter moving with the broad ligament; (b) direct pressure from the growing abscess, forcing the ureter in the direction of least resistance; (c) a combination of both.

He recommends evacuation of the pus through the vagina, saying that the incision should be made directly behind the cervix even if it is displaced, and that under no circumstances will the ureters be injured by this operation. If the abscess cavity does not reach the wall of the vagina it can be easily opened by working the finger through the cellular tissue of the broad ligament.

TWO CASES OF TRACHEAL STENOSIS FROM NEW GROWTH.

BREWER (*Medical News*, Feb. 11, 1905) reports two cases of tracheal stenosis with operation for its relief. The first patient was eleven years old, with a history of having suffered with papillomata of the larynx when five years of age. Operation for the removal of the tumors was refused, hence tracheotomy was performed, and it was necessary to wear a tube continuously, although attempts were made to dispense with it. Brewer operated by laying open the larynx and the cervical portion of the trachea and removing several papillomatous masses. At the end of thirty-six hours the use of the tube was abandoned. There was no dyspnea, and the patient made a good recovery, although the voice had not completely returned at the time the report was made.

The second case was a physician of fifty-two who had been suffering from attacks of dyspnea at intervals for a period of three years. After considerable difficulty in inducing chloroform anesthesia dissection was made over the cervical portion of the trachea, and after a prolonged and hazardous operation a large tumor, which proved to be an adenoma, probably of an accessory thyroid, was removed from the right of the trachea in the region of the sternoclavicular joint. The pressure of this tumor upon the trachea produced the dyspnea. The patient made a prompt recovery.

COLLES'S FRACTURE.

CAMPBELL (*Brooklyn Medical Journal*, January, 1905) says that Colles's fracture ranks next in frequency to fracture of the clavicle. It occurs because there is a weak spot in the radius about three-fourths of an inch from its lower end, and because the cross-strain is brought upon this part of the bone when man falls upon his hyperextended hand. Except in elderly people true impaction as a rule does not occur. Thus the absence of crepitus and abnormal mobility is to be accounted for, not by impaction but by the interlocking of the roughened surfaces of the two fragments in their usual abnormal position, and by their being held firmly in the strong muscular contraction in the forearm.

The fracture, which cannot be satisfac-

torily reduced without anesthesia, should be immediately reduced. If replacement is accurately done, any form of splint will give a good result. The best method of reduction consists in supinating the hand and flexing it at a right angle at the carpal joint with the fingers extended. At the same time traction is made upon the hand while it is flexed, and counter-pressure is made with the thumb upon the upper fragment of the radius.

The important point in connection with the splint is that the sling should be adjusted so that the weight of the arm is borne upon the ulna, and the hand is left free outside of the sling, that by its weight it may be carried toward the ulnar side.

Several months will elapse before pronation and supination can be freely accomplished. Even with the best of treatment some deformity may result, and the patient should be so informed.

SYMPATHECTOMY FOR GLAUCOMA.

MARPLE (*Journal of the American Medical Association*, Dec. 31, 1904) reports two cases of resection of the superior cervical ganglion of the sympathetic for glaucoma. From these two cases, together with three others previously reported, he concludes that this operation is not indicated in acute inflammatory glaucoma, and that if an operation is ever indicated it is in cases of chronic simple glaucoma. The best that can be said for the operation is that it cannot do any harm and may possibly do some good, and that, in view of the brilliant results obtained by some, one is warranted in suggesting it to otherwise hopeless cases.

HERNIA IN INFANCY AND CHILDHOOD —ITS MANAGEMENT.

COLEY (*Journal of the American Medical Association*, Jan. 14, 1905) says that one-third of all cases of hernia occur in children under fourteen. He believes the truss treatment should always be chosen for children under the age of four years, except when there is a history of strangulation that has been reduced by taxis, when despite carefully directed truss treatment the hernia has become irreducible or

reducible with difficulty, when the rupture cannot be controlled by a truss and is gradually increasing in size, when there is femoral hernia, or when a hernia is associated with reducible hydrocele or fluid in the hernial sac.

Two-thirds of all cases under four years can be cured by carefully directed truss treatment, although there will be a considerable number of relapses in after years. A fair proportion of cases can be cured after the age of four years by this treatment if it is carefully supervised by a surgeon. Coley considers the "opposite-side" or "cross-body" truss the best. A truss should be applied as soon as the hernia has been recognized, and should be worn day and night. The great majority of umbilical hernias can be cured by a truss. If hernia persists after careful truss treatment, an operation should be performed. If the rupture first appears after four years of age there is much to be said in favor of operative over mechanical treatment, and he is inclined to advise operation in the majority of such cases. It is a mistake to consider hernia in children more readily cured by operation than in adults. The operation must be more carefully performed on account of the delicacy of the tissues. When this is done the results are almost perfect. Chromicized kangaroo tendon or other absorbable suture is to be preferred. The Bassini method, modified by placing one suture above the cord, gives the best results. No drainage is used, the wound is dressed on the seventh day, the patient is kept in bed two weeks, allowed to go out in eighteen days to three weeks, and required to wear a spica bandage until four weeks have elapsed. The removal of the veins of the cord is never necessary in children.

In cases of inguinal hernia complicated by undescended testis, Coley uses the Bassini method, except that he does not transplant the cord. He frees the cord high up and brings the testicle into the scrotum.

Strangulated hernia is comparatively rare in children, and most frequent during the first two years of life. Eleven of Coley's thirteen cases were under two years. The operation is the same as that for radical cure in non-strangulated cases.

Prior to the introduction of rubber gloves in 1897 primary healing took place in 96 per cent of cases, and since the introduction of gloves in 99 per cent. Between August, 1891, and July, 1904, Coley performed 825 operations for radical cure of hernia in children under fourteen with one death, which was due to ether pneumonia. Four operations were for umbilical, four for epigastric, 25 for femoral, 790 for inguinal hernia. In 775 cases done by Bassini's method, with the substitution of chromicized kangaroo tendon, there were but three relapses. In 15 cases in which the cord was not transplanted five relapses occurred. In 25 cases of femoral hernia there has not been a relapse. The purse-string suture with kangaroo tendon has been used.

TUBERCULAR PERITONITIS.

C. H. MAYO (*Denver Medical Times*, February, 1905) says that in the treatment of tuberculous peritonitis in males the incision is made over the appendiceal region, while in women it is so made as to permit of exploration of the pelvis. The object of the operation is to search for the original lesion and remove it, whether it be the Fallopian tube, appendix, or other structure. Great care must be exercised not to open the bowel in separating adhesions of the intestines. After removal of the tuberculous focus iodine or iodoform emulsion is applied to the diseased area. The general peritoneum, if tuberculous, is left to take care of itself, and the abdomen is closed without drainage.

A CONDITION OF THE LOWER LIMBS OFTEN MISTAKEN FOR PHLEBITIS.

In the early stages of phlebitis, and in certain subacute cases, the symptoms are sufficiently indefinite to lead to conditions being diagnosed as phlebitis which are certainly not of that nature. The result is that treatments are adopted which are sometimes harmful, useless, and wasteful of the patient's time.

BENNETT (*British Medical Journal*, Dec. 10, 1904), in connection with these indefinite symptoms, describes a condition of the lower limbs characterized by

rapid onset and diffuse pain, rather irregular in distribution, increased by slight pressure, and relieved by heavy pressure. The limb is moderately swollen, but not edematous. The swelling is not influenced by position; if not general it is limited to the distribution of certain cutaneous nerves, especially the internal and middle cutaneous, to the saphenous and the external cutaneous in the thigh, and to the musculocutaneous in the leg and dorsal aspect of the foot. When the whole limb is involved the normal outline is preserved, contrasting strongly with the shapeless swelling which occurs in phlebitis of the femoral or iliac vein. The cause of the trouble is unknown, but it has been seen to follow enteric fever and malaria. Evidently not an ordinary neuritis, it may have some relation to pseudoarthritis, or may be due to vasomotor disturbance.

Rest has no beneficial effect, but even if no treatment is adopted, recovery invariably occurs. Treatment is necessary to bring about a speedy cure, and consists in massage, electricity, passive movements, and resistance exercises.

DUODENAL ULCER AND ITS TREATMENT.

The *British Medical Journal* of December 17, 1904, contains a fairly exhaustive résumé of the treatment of duodenal ulcer by D'ARCY POWER. The author concludes as follows:

Duodenal ulcers are not very uncommon. They are single, and are more frequent in men than in women. The ulcers may perforate and cause acute symptoms, or they may heal, and by cicatrization lead to symptoms of chronic duodenal obstruction.

The sequelæ of a healed ulcer may be so remote that the symptoms are mistaken for those due to cancer of the pylorus, and the patient is allowed to drift from bad to worse under the erroneous notion that he is bound to die.

There is no means in a great many cases of recognizing the existence of a duodenal ulcer until it perforates, or until the results of its cicatrization become manifest.

The treatment of duodenal ulceration

consists (1) in the direct suture of a perforated ulcer, the prognosis being less favorable than in similar cases of perforation; (2) the performance of gastro-jejunosotomy in cases of dilated stomach due to duodenal constriction, the prognosis being the most favorable of all the conditions for which this operation is performed at the present time.

SURGICAL ANESTHESIA IN CHILDHOOD.

It is stated by ERDMANN (*Brooklyn Medical Journal*, January, 1905) that few children die of anesthesia, and that as a rule a child bears an anesthetic better than an adult. This is accounted for on the ground that the general health of children is less apt to be impaired than that of adults; fewer major operations are necessary in early life; and anesthesiologists as a rule exercise greater caution.

In children, care should be taken to keep up the body heat, to obviate the loss of a large amount of blood, and to shorten the period of anesthesia as much as possible. The life of the child is divided for the purpose of this consideration into three periods: (1) Up to the completion of the first dentition; (2) the interval from the completion of the first dentition to the completion of the second; (3) from the second dentition to puberty. To these may be added a fourth, which covers the fetal life. The fetus *in utero* is quite susceptible to the effects of an anesthetic. Ether is more dangerous for it than chloroform, because so much of the former is taken up by the maternal blood that its oxygen-carrying power is thus lessened.

An anesthetic is seldom used in children under three months of age. In using an anesthetic during the first period above mentioned, the surgeon should take account of the small size of the nasopharynx, the ease with which the relations of the thoracic contents are disturbed on account of the flexibility of the spine, and the relatively small lung capacity. Chloroform is safer for this period because it is less likely to produce congestion of the air-passages. Ethyl chloride is also very efficient.

During the second period chloroform is not generally employed, although it is not objectionable if carefully administered.

The respiratory and circulatory apparatus are stronger and less susceptible to the evil effects of the anesthetic. As a rule a child should be gradually brought under the influence, and in some cases the anesthetic must be forced. A drop of oil of eucalyptus or gaultheria placed upon the cone will disguise the odor of the anesthetic. The eye, the pulse, and the respiration are poor guides to the condition of the patient. The most reliable danger-sign is a deepening leaden, ashy pallor. When this occurs the anesthetic should be withdrawn.

In the third period it is necessary as a rule to force the anesthesia. In this stage nitrous oxide and ethyl chloride are especially advantageous, and they may be used to precede the ether or chloroform.

The kind of operation as well as the condition of the child should be carefully considered. While the percentage of major operations in children is small, there is frequently present some impoverished state of the blood or some other condition of lowered vitality. The most important condition is the status lymphaticus. Anesthesia can frequently be induced in children while sleeping without wakening them. In this way the resistance of the child is obviated.

Reviews.

A SYSTEM OF PHYSIOLOGIC THERAPEUTICS. Edited by Solomon Solis Cohen, A.M., M.D. Volume XI. P. Blakiston's Son & Company, 1905.

We have already reviewed in terms of praise the earlier volumes of this very exhaustive encyclopedia of remedial measures other than drugs. The present volume, which closes the series, contains, as an opening article, one on Serum Therapy by Joseph McFarland, M.D.; a second upon Organotherapy is by Oliver T. Osborne, M.D.; another upon Radium, Thorium, and Radioactivity by Dr. Samuel G. Tracy; and a fourth upon Counter-irritation, External Applications, and Bloodletting by Frederick A. Packard, M.D. The last article consists in an outline of the principles of therapeutics with a special reference to physiologic therapeutics, by the editor, with an addendum on X-ray Therapy. The volume closes with an "index-digest" of the complete system of the eleven vol-

umes, which has been compiled by Dr. R. M. Goepf and Dr. Charles W. Bonney. This index is so complete that it covers 130 pages.

The table of contents which we have just given reveals to our readers the fact that the present volume deals with a large number of remedial agents which ten years ago were practically unknown. Dr. McFarland makes clear in his article the new theories of Ehrlich in regard to immunity, using the diagrams of that well-known German investigator to make his meaning more clear. In the second chapter he deals with special serum-therapeutics, or, in other words, with the individual serums which have been so far commonly employed in medicine. We are somewhat surprised to find that Dr. McFarland has only taken twenty-six pages, about 10,400 words, for the consideration of one of the largest subjects in modern therapeutics. Probably it was not his intention to provide an exhaustive article upon this theme. The article by Dr. Osborne upon Organotherapy covers, on the other hand, nearly sixty pages, although the subject is scarcely as large a one as that of serum therapy. Although physicians are perhaps inclined to leave the older methods of external treatment, such as counter-irritation and bloodletting, too severely alone, the facts adduced and the confidence manifested as to their value by Dr. Packard in his article are well worthy of much consideration. That upon Radium, Thorium, and Radioactivity covers about ninety pages, and Dr. Cohen's article about fifty. We think that the author has done well to sum up his own views in regard to non-medicinal agents in the closing article of this volume, for there can be no doubt that the importance of remedial measures other than drugs is increasing day by day.

To sum the matter up, this volume gives one an outline of the various subjects which it discusses, but cannot be considered by any means an exhaustive description of these modern methods.

We congratulate the editor and the publisher upon the completion of a very very large and difficult task, and think it fortunate that the profession has had summarized for it a large number of facts which have hitherto been widely scattered.

NORMAL HISTOLOGY AND MICROSCOPICAL ANATOMY. By Jeremiah S. Ferguson, M.Sc., M.D. New York and London: D. Appleton & Company, 1905.

A new text-book dealing with histology should have special features in order to merit a position among a number of acceptable works at present available. Dr. Ferguson has presented such a volume, and the publishers have done much to make it attractive. The general scheme of the publication shows no striking departure from the usual, but in arrangement follows the commonly adopted classification and sequence of subjects. The work opens with a consideration of the cell and of histologic units, followed by descriptions of tissues, and finally of organs. The general allotment of space seems on the whole well chosen, and any criticism of this feature must be nothing more than an expression of the personal bias of the reviewer. There seems no adequate return for an arrangement which intercalates some 300 pages treating of other matters between the chapters dealing with nervous tissues and nerve terminations and the systematic consideration of the nervous system. The arrangement necessitates a duplication of text and even of illustrations (Figs. 100 and 370, 106 and 402), adding bulk for which there appears to be no special demand. The volume is conspicuous because of the large space given to the nervous system; of thirty chapters, seven (if the eye be included, eight) are devoted to this subject, the importance of which cannot be overestimated. The digestive system with its glandular appendages receives 84 pages, the nervous system 100 pages.

The author's presentation is clear, his sequence related, and the selection of illustrations discriminating. The term "highly magnified" applied to some of the figures should be dropped, and the prevalent tendency to present impossible enlargements—magnification attainable by no appliance available—should be suppressed. Both tend to confuse the student, and neither makes for clearness. As a rule photomicrographs are disappointing; some of the pictures establish the correctness of this view, while others adequately serve their purpose. Errors and misleading or obscure statements are of exceedingly infrequent occurrence. The

inference (p. 35) that all connective tissue cells containing basophilic granules are mast cells could have been made clearer.

In a number of places, particularly in the central nervous system, a tinge of physiology is dexterously added and greatly enhances the value of the book. The inclination to criticize any tendency toward "applied histology" in works on this subject and gross morphology is clearly wrong, and Dr. Ferguson's judicious correlation of something about function with his consideration of structure is highly commendable. The sketchy chapter on technique is accurate but necessarily incomplete.

The publishers have produced a presentable volume, although there is no doubt that the author sees in some of the color work opportunities for improvement. Dr. Ferguson is to be congratulated upon the general excellence of his book, which may safely be predicted a secure position among standard textbooks on the subject. W. M. L. C.

ACUTE CONTAGIOUS DISEASES. By William M. Welch, M.D., and Jay F. Schamberg, A.B., M.D. Lea Brothers & Company, Philadelphia and New York, 1905. Price \$5.00.

We extend a most hearty welcome to this very excellent book prepared by two authors whose experience in the study of contagious diseases is as large as, or larger than, that of any other physician in this country. In the preface we are told that the text is based upon a personal study of over 9000 cases of smallpox, 9000 cases of scarlet fever, 10,000 cases of diphtheria, and a considerable number of cases of other contagious diseases which have been treated in the Municipal Hospital of Philadelphia during the last thirty-three years, during which period one of the authors, Dr. Welch, has been physician-in-charge of that hospital. The book contains nearly 800 pages, and in it we find a most excellent and exhaustive description of vaccination, the variolous diseases of the lower animals, smallpox, chicken-pox, scarlet fever, rubella, typhus fever, and diphtheria. There are also concluding chapters upon the treatment of diphtheria and one upon disinfection. In addition to excellent descriptions of the symptomatology of these various diseases the book contains a large number of excellent illustrations, many of which are

arranged in series—that is, they show the same patient in various stages of onset, acme, and convalescence. As one would suppose, a very considerable part of the book is devoted to smallpox and vaccination, no less than 300 pages being devoted to this subject.

Not only are the subjects of etiology and diagnosis thoroughly and clearly discussed, but an unusual amount of information is given as to the views of the authors concerning treatment. The book is of value not only because it presents the views of its experienced authors, but also because it provides us with a wealth of material, extracted from old and modern literature, concerning the various diseases of which it treats.

In the treatment of diphtheria the authors not only give their own methods, but quote very largely those which are employed by others. In some instances we believe that their therapeutic recommendations are based rather upon the methods employed prior to the introduction of antitoxin than upon present needs. We also note that careful attention is given to intubation and to methods of feeding diphtheritic patients.

One cannot help but be interested in noting the attitude of the authors in regard to the important subject of serum therapy in diphtheria, for it will be remembered that Dr. Welch, notwithstanding his long experience in the treatment of this disease, was one of those who, at least in the early days of the use of antitoxin, published opinions which did much toward making other physicians hesitate in its use. An examination of the portions of the book dealing with this subject reveals the fact that the authors have little to say themselves in regard to its value, quoting largely from other writers, and occasionally introducing a paragraph which shows that they are not unfriendly to its use. This we consider regrettable, particularly as they state that "more than one death has been reported as immediately following the injection of serum," which gives the uninformed an erroneous idea as to the danger of this remedy. Perhaps these intimations, that diphtheria antitoxin is not as valuable as it might be, are rather the opinions of Dr. Welch than of Dr. Schamberg, although the third person plural is used in the sentences to which we refer.

While text-books on the practice of medicine give, in the great majority of cases, an adequate description of the various diseases which are studied in this work, none of them have the space to exhaustively consider the subject in a satisfactory manner, and therefore this book fills a niche in the physician's library in a way which is not equaled by any other publication. We cordially commend it to our readers as being the best work on the subject in the English language.

AN INTRODUCTION TO CHEMICAL ANALYSIS. For Students of Medicine, Pharmacy, and Dentistry. By Elbert W. Rockwood, M.D., P.D. P. Blakiston's Son & Company, Philadelphia, 1904. Price \$1.50.

This is a small volume of 255 pages, devoted, as its title indicates, to ordinary methods of chemical analysis. The first part deals with the qualitative analysis of metals, acids, and organic compounds, the second with volumetric analysis, the third with applied analysis, and the fourth with the preparation and testing of reagents with the chemical elements, symbols, atomic weights, and the metric system. In some respects it would perhaps have seemed more natural if the last part had been the first.

Physicians who are fond of doing some chemical work, and yet have not time for exhaustive analysis, will find the methods herein described for the recognition of the chemical substances often used in medicine briefly and concisely given. It is essentially a laboratory manual, and not a complete work.

DISEASES OF THE HEART. By Edmund Henry Colbeck, B.A., M.D. Second Edition, Revised and Enlarged. W. T. Keener & Co., Chicago, 1905. Price \$2.50.

Dr. Colbeck's book is a small octavo volume of 350 pages, in which he discusses the anatomy, pathology, and symptoms of cardiac disease with special reference to diagnosis. After these opening chapters he deals with the various forms of valvular disease, with diseases of the heart muscle, and with congenital lesions of the heart. A comparatively small amount of space is devoted to the therapy of the various conditions under consideration. We are surprised to find that in the chapter on cardiac asthenia the author tells us that "Da Costa has comparatively recently described this condition." As

Dr. Da Costa's studies were made at the close of the Civil War—some forty years ago—we imagine that the author is not familiar with his original contribution. The book is rather a record of personal views and experiences than a representation of our general knowledge in regard to the conditions described.

A BOOK ABOUT DOCTORS. By Thomas Cordy Jeafreson. The Saalfeld Publishing Company, Akron, Ohio, 1905.

This book, which belongs to the Doctor's Recreation Series, two issues of which we have already noticed in these columns, contains twenty-seven chapters, which in reality are twenty-seven brief essays upon different subjects dealing with a doctor's life, or with individuals in medicine who have achieved fame in medicine in England and America. In other words, some of the sketches are biographical, while others are pure fiction. There are a number of illustrations, many of which are already familiar to the profession, such as, for example, the illustration of Professor Billroth's Surgical Clinic. The volume is an interesting one for the physician who, after a day's work, is often desirous of picking up a book which deals not so much with the practice of medicine as with nearly related facts which will prove entertaining and at the same time edifying.

THE DETECTION OF POISONS AND STRONG DRUGS. By Dr. Wilhelm Autenrieth. Authorized Translation by William H. Warren, Ph.D. Illustrated. P. Blakiston's Son & Company, Philadelphia, 1905. Price \$1.50.

In the 222 pages of this volume the author gives us methods for a quantitative estimation of medicinal principles in certain crude materials. The first deals with the estimation of volatile poisons such as phosphorus, hydrocyanic acid, chloroform, carbon disulphide, etc. The second chapter deals with non-volatile organic substances such as picrotoxin, caffeine, colchicine, etc., and with the various alkaloids or drugs commonly employed in medicine. The third deals with metallic poisons. The fourth chapter discusses poisons in the groups already mentioned. The fifth chapter takes up the quantitative estimation of alkaloids and active principles in crude materials, as, for example, the estimation of cantharidin in Spanish flies, of caffeine in coffee and tea,

of nicotine in tobacco, and of strychnine in *nux vomica*.

The book is a useful but brief laboratory manual, more valuable to the busy physician than to the chemist who devotes his time solely to this form of research.

OPERATIVE SURGERY. By Joseph D. Bryant, M.D. In Two Volumes, Illustrated. Fourth Edition. Printed from New Plates, Entirely Revised and largely rewritten. D. Appleton & Co., New York and London, 1905.

The call for a fourth edition of Bryant's *Operative Surgery* demonstrates that even such literary and technical masters as Treves and Jacobson have failed fully to appreciate the needs of the American practitioner.

There have been many additions to this last work, some of which impress the reviewer as having been inserted more with the idea of representing the dominant thought of current literature than because the procedures have possessed distinct advantages which won for themselves a permanent place in surgical technique. There are also some omissions, but none of great importance.

As usual in operative surgeries there is a lengthy section upon ligature of arteries in continuity, in which is included the ingenious procedure of Matas for the cure of aneurism and Murphy's method of suture of divided arteries. It is noteworthy in craniotomy the author prefers the use of the chisel. The methods of Rose, Hartley, Cushing, and Doyen are given in full for the removal of the Gasserian ganglion.

In the section upon surgical treatment of stricture of the esophagus the most serviceable device of recent years—*i.e.*, the string guide introduced by swallowing—is not mentioned.

The section devoted to operations upon the viscera connected with the peritoneum is unusually full. Bryant evidently prefers through-and-through suture in closing abdominal wounds.

The final section of the book is devoted to miscellaneous operations, under which are considered suture of the patella, suture of the olecranon process, the union of fractured long bones, nailing the head of the femur, the application of the Parkhill splints, operations on the cervical sympathetic nerve, and some plastic operations for common deformities of the ear.

For the practical surgeon the book is an extremely useful one, enabling him in the briefest space to review in the main the most modern and approved procedures of surgery.

Correspondence.

LONDON LETTER.

By G. F. STILL, M.A., M.D., F.R.C.P.

The success of surgery in the treatment of biliary calculus is one of the most important advances in abdominal operation. A gall-stone in the common duct has usually caused the death of the patient, unless nature has succeeded in displacing it, and even when removed by skilful surgery the mortality has been high. Mr. Mayo Robson in a paper read before the Medico-chirurgical Society this month stated that the mortality in his operations for this condition was formerly 16.2 per cent, but recently by exposing the biliary passages more thoroughly he had in a series of eighty operations had only three deaths, a mortality of less than 3.9 per cent. The diagnosis of this common-duct cholelithiasis may be by no means easy. In some of his cases there was no jaundice, only repeated rigors; in some cases there was deep jaundice with rigors, but with no pain. The symptoms were in fact largely those of septic poisoning, and with free drainage of the bile passages these all disappeared speedily. Many of Mr. Robson's patients were advanced in age, and a successful result he thought might be looked for even in patients over seventy years of age. The percentage of recoveries was about 95.

At the recent discussion on the after-course of cases operated upon for appendicitis it was clearly shown that even removal of the appendix does not always permanently abolish attacks resembling appendicitis in character; but in these cases at any rate there is reason to believe that the stump of the amputated appendix, or some inflammatory trouble remaining in the neighborhood, is responsible for the perpetuation of symptoms. It is also quite certain that symptoms closely resembling appendicitis may occur where the appendix is perfectly normal; we have even heard of laparotomy in such

cases, with totally unnecessary removal of the innocent appendix. But alas! even when we have dispensed with our appendix we are not to be left in peace: if the right iliac fossa does not give trouble, the left may, according to Dr. Rolleston, who now describes a "pericolitis sinistra," which has the symptoms of appendicitis, only on the left side of the abdomen. Peritonitis of any degree, or abscess, may occur about the sigmoid flexure of the colon, or, as in appendicitis, perforation may take place with resulting general peritonitis. The condition is dependent upon constipation with ulceration of the mucous membrane.

In the discussion which followed it was shown that other physicians had met with this disease, but Dr. De Haviland Hall thought that some of the cases might be of rheumatic origin, the inflammation starting outside the bowel in the serous membrane—another point perhaps in which this condition may resemble some cases of appendicitis.

At the same meeting an interesting report was made of an epidemic of infective colitis, which attacked about thirty cases, mostly children, with fatal result in some cases. The colon was found to be extensively ulcerated, and the bacillus enteritidis sporogenes, which Dr. Klin considers to be one of the exciting causes of summer diarrhea in infants, was found in the contents of the colon. The channel of infection was thought to be the water used for drinking. The colon is coming in for a considerable amount of abuse just now; we have long been taught to regard the appendix as a superfluity, but the inherent wickedness of the colon is only now being exposed. The Chelsea Clinical Society last month added to its crimes (the colon's, I mean) such a list of evils in connection with chronic constipation that it could only be concluded—as is the propensity now-a-days—that "something must be done." Mr. W. A. Lane advocated short-circuiting by connecting the lower end of the small intestine with the sigmoid or the rectum. One gentleman apparently would like to remove the colon altogether, but as a compromise accepted the anastomotic procedure already mentioned. Experimental observations were adduced to show that man could get on quite well without his colon. It had been

feared that if the large intestine were eliminated the patient might suffer from chronic diarrhea, owing to lack of that absorption of fluid which is known to take place in the colon; but it was found that after the operation the stools gradually became normally firm, the small intestine having, as it would seem, taken on the absorptive function of the large. True, a certain proportion of fat was absorbed from the feces also in the colon, and digestion of cellulose also was partially carried out in the large intestine, but perhaps the small intestine would take over these functions also. On the whole, in spite of the imperfections of the present arrangement, there is some satisfaction in feeling that *homo sapiens*, surgical or otherwise, is not likely ever "to boss creation for a week!"

Fortunately he is not even likely to impress the rulers of the land with any conviction of the necessity for tinkering nature's handiwork wholesale, as some writer in one of our London medical journals recently proposed, apparently wishing to make it compulsory by law that every child who has adenoids should have them removed, regardless of the fact that a certain amount of such tissue is normally present, and that even when present in a degree somewhat above the average it does not necessarily do any harm whatever, and even when producing some symptoms may, if these are but slight, cease to do so as the child grows older.

A curious joint affection which has attracted attention within the past few years was illustrated by a record of three cases by Prof. Howard Marsh at the Clinical Society this month. It is the so-called "intermittent hydrops of the joints," in which one or more of the joints become swollen with evident effusion at regular intervals—in one case every twelve days, in two others every fourteen days. During the intervening periods the joints were perfectly normal, and even after several years of these recurrences the joints remained unimpaired, and therefore whatever the nature of the disease might be—and this is quite uncertain—it is probably not inflammatory. The point of chief practical importance is the recognition of the disease, for it might be mistaken for loose cartilage and lead to useless opera-

tion. The only treatment which seems to do good is the administration of arsenic.

Amongst the events of the month in the medical world of London must be mentioned the meeting which was held at the Royal College of Physicians to discuss the possibility of amalgamating or confederating the medical societies of London. The idea is to unite several of the societies to the extent of housing them under one roof, and arranging a financial scheme which would allow admission to the advantages of all the confederated societies by one subscription. Two societies in London, the Royal Medical and Chirurgical Society and the Medical Society, have considerable property, particularly in the form of libraries, and the success of the present attempt must depend to a large extent upon their attitude toward the scheme. There seems to be a wide-spread feeling in favor of some such confederation, but the details have yet to be worked out, and this is not the first time that an attempt has been made at some combination of this sort.

Another important meeting was held at the Royal College of Physicians a few days ago, when the annual election of president took place. It was understood that Sir William Church, who has held this office since 1899, would not take it again, and after some close voting Sir R. Douglas Powell was elected president.

PARIS LETTER.

By A. R. TURNER, M.D. (PARIS).

In a recent number of the *Journal des Praticiens* Dr. Renon, physician of the Pitié Hospital, has indicated the therapeutics of the early stage of consumption. One of the best drugs to be used, according to Dr. Renon, is arsenic, and he administers it in the following manner:

Arsenate of soda, 0.05 centigramme;
Distilled water, 300 grammes.

One large spoonful before lunch and dinner, for twenty days every month during three or four months.

He also adds a small amount of tincture of lobelia where there is a dry cough. This preparation never causes any disagreeable symptoms, and does not bring about diarrhea, nephritis, or pigmentation. Fowler's solution may also be employed,

or the cacodylates, which are still holding their own in France. Arrhenal, which seemed to be better indicated, as it could be given by the mouth, has seemed to lose favor, most likely on account of gastric disturbances. On the other hand, creosote has but few indications, as given by the mouth it causes serious gastric trouble. In certain torpid forms, and where there is extensive suppuration, it is of some use, not more than 1.50 to 2 grammes being given daily.

At a meeting of the Medical Society of the Hospitals, Professor Vaquez, a well known heart specialist, read a report on a case of aortic regurgitation, which had rapidly developed in a patient suffering from a mild form of locomotor ataxia, and who had felt a sudden pain in his chest while getting off a tramcar. At night he heard a sort of rasping noise which seemed to come from his chest. On examination a double blowing sound is heard over the aorta which indicates the rupture of a valve. There are also symptoms of locomotor ataxia, such as abolition of the patellar reflex, irregular pupils, with Argyll's sign on one side, and medullar leucocytosis. Syphilis is found as an antecedent.

Dr. Tuffier has written a note to the *Presse Médicale* on the question of anti-cancerous serums, and especially that of Loeffler, in which he states the following facts: One may take any serum, anti-tetanic or antidiphtheritic, inject it into a cancerous patient, and note an amelioration. The tumor may even diminish one-half in size. Sooner or later, however, its effect is lost, and the disease progresses sometimes more rapidly than before. These serums seem to be beneficial because they bring about hyperleucocytosis.

Paquelin, the inventor of the cautery which bears his name, has just died. He was a man very much esteemed by his friends, but did not belong to the Paris hospitals. Another physician whose loss will be much felt is Dr. Soupault, the well known stomach specialist. He had been suffering from diabetes during the last six years, but it was only recently that he became aware of it, on seeking to take out a life insurance policy. He worked to the very last on a treatise concerning diseases of the stomach, and corrected the last proof-sheets a few hours before diabetic coma set in.

—THE— Therapeutic Gazette

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A REPORT OF TWO ADDITIONAL CASES OF THORACIC ANEURISM AND ONE OF INNOMINATE ANEURISM TREATED BY WIRING AND ELECTROLYSIS.

By H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College.

I have already reported eight operations of this character, and now desire to record three more.

The first case was that of a woman of fifty suffering from an aneurism involving the superior and posterior portions of the transverse arch of the aorta in such a manner as to include the origin of the large vessels arising from this part of that vessel. She had suffered from con-

stantly increasing thoracic pain and dyspnea, and at the time of the operation presented a marked bulging and pulsation in the suprasternal space and under the sternal end of the right clavicle. The dyspnea from pressure having become so great as to cause the patient constant suffering and prevent her from reclining in bed, gold wire to the amount of eight feet was passed into the sac through an ordinary insulated needle, and the electric current, started at 5 milliamperes and gradually increased to 50 milliamperes, was passed through the sac for the period of thirty minutes. Before the operation was completed the patient expressed herself as being relieved of the pressure to some extent, and for several weeks afterward was able to sleep in a reclining posture with perfect comfort. The case

soon passed from under my observation. Six months after the operation, however, the growth began to enlarge at the margin of the clot which had been formed by the operation, and death finally occurred from the pressure which it produced upon the trachea combined with exhaustion.

Her physician, Dr. Righter, made an autopsy, which confirmed the antemortem diagnosis as to the situation of the aneurism. A probe introduced into the innominate artery from above entered the aorta from behind, and at the right margin of the clot, and another probe introduced into the left carotid artery was found to enter the vessel in front of the clot near its left margin. The wire was found embedded in the clot, which had formed about it.

The second case was that of a man aged forty-two, with a negative family and personal history, save that he had had rheumatism sixteen years before. Five months before he came under observation, while doing some heavy lifting, he felt an acute pain in the region of the upper portion of the chest on the right side, but this passed away in a few minutes, and he thought no more about it until questions calling his attention to the subject of heavy lifting were addressed him at the hospital. Four weeks before his entrance into the hospital he noticed that his neck and the right side of his chest were larger than normal, and that he was beginning to be somewhat short of breath on exertion. He consulted a physician, who gave him some medicine, and he thought that the swelling disappeared. Three days before entering the hospital he stated that the swelling suddenly reappeared and had produced so much dyspnea that he had been unable to work. This dyspnea increased when he was exposed to the cold air. On admission to the hospital he had a whispering voice. There was some paralysis of his right vocal cord, but there was no interference with swallowing. The mass filled the epiclavicular space at the right side near the sternum, and passed backward under the sternomastoid muscle, pushing apart the bellies of the two branches of this muscle and protruding prominently into this space. There was some difference of opinion on the part of those who examined him as

to whether this was a morbid growth, or whether it was an aneurism, it being thought by some that the impulse which was felt on palpation was due to transmission through a tumor rather than the expansile pulsation of a dilated vessel. Having decided, however, that the cause was an aneurism, I inserted an insulated needle into the tumor, just above the clavicle, pushing it downward toward the arch of the aorta. As no blood flowed from this needle I inserted it a second time near-by, and on blood flowing from the orifice two feet of gold wire was passed and electrolysis used, varying from 5 to 50 milliamperes in the course of forty minutes. A perceptible diminution in the force of the pulsation took place during the progress of the operation. Immediately after its conclusion the patient stated that he felt much relieved of the tension at the base of the neck. Two weeks after the operation the area into which the wire had been introduced was firm and devoid of expansile pulsation, although it moved slightly from a transmitted impulse. At this time it was found that there was some bulging to the left of the mass due to secondary yielding of that part of the growth. Two months later, the patient having been moderately comfortable during this period of time, dyspnea again began to be a marked symptom, the voice became whispering a second time, and death finally took place as the result of exhaustion and interference with respiration and deglutition. The autopsy gave the following results:

Beginning at a point 2 centimeters above the superior border of the cricoid cartilage, a mass extended 8 centimeters below the upper border of the sternum to within 2 centimeters of the acromial process on the right side, and to within 8 centimeters of the same process on the left side. The mass rose gradually, reaching its highest point 3 centimeters above the suprasternal notch in the median line. On removing the chest wall in part it was found that the mass was adherent to the upper portion of the sternum, and occupied the entire superior part of the anterior mediastinum. It was also firmly attached to the trachea behind, and this tube had been so compressed as to flatten it, but not occlude it. The superior vena

cava was displaced 2 centimeters to the right of the border of the sternum, and coursed along the side of the mass. The transverse and part of the ascending arch of the aorta was concealed by the growth, but by careful dissection could be freed along its anterior and inferior portion, but none of its branches could be isolated. The thyroid gland was also incorporated with the aneurismal mass. The interior of the aorta was studded with irregular areas of atheromatous change. Examination of the innominate artery showed that the inferior portion of the wall of that vessel was absent. In its place there was a reddish, grayish, friable substance, and over this point the aneurismal sac seemed to take its origin. On opening the aneurismal sac it was found to be lined with a laminated clot varying from 0.5 centimeter to 1.5 centimeters in thickness. The interior of the clot was occupied by a black, rather thick liquid, but the fluid did not seem to communicate with the innominate artery. The post-mortem diagnosis confirmed the ante-mortem diagnosis of saccular aneurism of the innominate artery without involvement of the aorta itself. A remarkable thing about the post-mortem examination was the fact that no trace of the wire could be found in any part of the clot, although it was carefully dissected with the object of discovering the wire.

The third case was that of a woman of about fifty years of age, whom I operated upon through the courtesy of Dr. M. H. Fussell. The aneurism in this case involved the thoracic aorta just below its descending portion, and had eroded the ribs upon the left side so that the aneurismal sac projected to the extent of two inches outside of the line of the body between the vertebræ and the lower third of the left scapula. The skin covering the sac was distinctly ecchymotic. Having chosen the most bulging and pulsating portion of the growth, an insulated needle was inserted, but blood did not spurt freely from it. It was then partially withdrawn, and entered laterally and downward, when a flow of blood took place. Nine feet of wire was then introduced into the growth, and the same strength of electric current, 5 to 50 milliamperes, was passed during a period of about three-quarters of an hour. After

the operation the expansile pulsation in the growth diminished very greatly. This operation was performed on November 10, 1904. The patient lived four months, dying at the end of that time from pressure and exhaustion. The autopsy revealed an enormous laminated clot filling the entire sac, and also showed the wire coiled in the center of the aneurism embedded in fibrin, through which the blood had formed a channel. This case was reported to the Philadelphia Pathological Society in April, 1905, by Dr. Fussell.

The results obtained in these cases confirmed those which were reached after the eight other operations which I have already reported, and may be summarized as follows: It is noteworthy that in practically all the cases the operation was followed by immediate relief of the pressure symptoms, and a diminution in the expansile pulsation of the part operated upon. The degree of relief varied very considerably, but all of the patients experienced some benefit. Several of them volunteered the information that they felt amply repaid for the operation and the relief which they obtained.

Second, in each instance the ultimate death of the patient in no way proved that the operation was at fault. It indicated only that the disease in the blood-vessel wall was so extensive that the point of greatest weakness having been reinforced, the vessel then gave way at the margin of the clot, and at a place where operative interference could not well be undertaken.

Third, in each instance the operation probably prolonged life.

Fourth, while the number of cases of aortic aneurism which have been treated by this method are now quite numerous, instances in which a saccular aneurism of the innominate has been so treated are very rare; indeed, at the present writing I know of no other case of pure innominate aneurism treated by this method, although in a number of instances the innominate has been involved in the aneurism of the aorta.

The operation is performed under desperate circumstances, and the fact that it does not produce a permanent cure in every case in no way militates against its employment. It will be remembered that in Stewart's case, which involved

both the aorta and the innominate, the patient lived for a period of three years, dying at that time from an attack of pneumonia due to a debauch, and not from the aneurism.

GUAIACOL IN THE TREATMENT OF PNEUMONIA.

BY WILLIAM GEORGE CAIN, M.D.,
Epping, New Hampshire.

My experience with the treatment of pneumonia with guaiacol is limited, but may be of interest. During the past season there has prevailed in this section an epidemic of quite a fatal type of lobar pneumonia. Having been favorably impressed with a few cases successfully treated with guaiacol a year ago, I thought best to adopt the same method of treatment last winter.

The number of cases treated was sixteen, with no mortality. Guaiacol was used in doses of from 5 to 30 minims, according to age. It was rubbed into the skin of the chest or abdomen every twelve to twenty-four hours, as indicated. The skin was first cleansed to promote absorption. Then the guaiacol was slowly dropped from a medicine dropper, and rubbed in, one finger only being used. If the fingers are all used, much of the medicine is absorbed by them, besides making them rough. The chest was protected by a woolen flannel jacket. The bowels were kept well opened. A soda, alcohol, and water bath was given at least once a day.

The diet was light, and I insisted upon having plenty of warm, fresh air.

Anodynes, expectorants, tonics, and stimulants were seldom required. In most cases no internal medication was employed except laxatives.

Case 1 was a female, aged sixteen. Had been ill three or four days when seen. I found the right lower lobe involved. Temperature 106° , pulse 120, respiration labored. There was considerable pain in side, and suppressed cough. She could take no nourishment, and vomited frequently. There was an anxious look on face, and the skin was beginning to look dusky.

The treatment consisted in using guaiacol, 15 minims, rubbed into chest over seat of pain.

March 28, morning. Patient comfortable, having slept most of the night. The temperature was 102° , the pulse a little over 100, the respirations quite easy. She was much improved in every way. Guaiacol, 8 minims, was used as before. On March 28, in the evening, the temperature was 100° , and she was otherwise improved. No guaiacol was used. On March 29, in the evening, the temperature was 102° . Guaiacol, 15 minims, was used, and a laxative. On March 30, in the morning, the temperature was 99° . No guaiacol was used.

This patient made a good convalescence, being up in ten or twelve days from my first visit. Guaiacol was applied six times, and 68 minims used.

Case 2, male, aged ten. The temperature was 106° , pulse 130, respiration labored. There was a pain in side, severe headache, frequent suppressed cough, and an anxious expression. The right lower lobe was involved. Guaiacol, 15 minims, and a cathartic were used. In the evening the temperature was $102\frac{1}{2}^{\circ}$, pulse 110. He appeared much improved. Guaiacol 15 minims was again used. The next morning the temperature was $99\frac{1}{2}^{\circ}$, pulse 100, and he commenced to expectorate light-colored brick-dust sputa. No guaiacol was used, but on the following evening the temperature was 101° ; guaiacol, 8 minims, was employed. The morning temperature was 101° , and guaiacol 7 minims was given. The next morning the temperature was 99° . No further treatment was needed. Three days later patient was sitting up.

Guaiacol was applied four times, and 45 minims used.

Case 3, male, aged fifty-five. A robust, hard-working man. He was taken ill the day previous with a severe chill, followed by severe headache and fever. I found his temperature $105\frac{1}{2}^{\circ}$, pulse 120, full and hard. His face was flushed, and he was bolstered up in bed to nearly the sitting posture, and very short of breath. He had a distressing cough, and was a very sick man. The right lower lobe was affected. Guaiacol, 20 minims, and a cathartic were employed. The following evening I found his temperature 105° , and his condition but little changed. I applied guaiacol, 30 minims, to the abdominal wall. The following morning

his temperature was 102°, pulse 108. He had assumed a more recumbent posture and was breathing with comparative ease. Guaiacol, 20 minims, was used. The next evening there was little change, and guaiacol, 20 minims, was used. The morning temperature was 100°, pulse 100, and the breathing quite easy. He was coughing considerably and raising freely a dark prune-juice sputa. No treatment was used. The evening temperature was 102°, and guaiacol, 15 minims, was used. The next morning temperature was 99½°. From this time the case was uneventful. He had received guaiacol seven times, and a total of 125 minims.

Case 4, male, aged sixty-five. He was taken the day before with a chill and severe headache. I found his temperature 103°, pulse 110, and a throbbing, hard, labored respiration, with an appearance of distress. The right lower lobe was involved. Guaiacol, 20 minims, and a cathartic was ordered. The next day his temperature was 100°, pulse 90, and his general appearance was much improved. I applied guaiacol, 10 minims. The following day his temperature was 99°, pulse 80. No further treatment was given, save a laxative, and after two or three days a mild tonic. He raised easily the usual sputa, which was slightly tinged with red for a day or two. He was confined to bed but five days, and made a good convalescence. Guaiacol was applied but twice, and 30 minims was used.

The milder cases usually received but two or three treatments. The course of every case appeared to be shortened and rendered milder by the treatment.

A CLINICAL STUDY OF THE RELATIVE ACTIONS OF ATROPINE AND HOMATROPINE AS CYCLOPLEGICS.

By OSCAR WILKINSON, A.M., M.D.,
Washington.

A few years ago I was forced to question the efficacy of homatropine as a cycloplegic from the necessity of having to reexamine some of my patients, and those of other men, who had been examined under the influence of that mydriatic. The necessity for accurate cor-

rection of errors of refraction is probably nowhere more felt than here in Washington, where such a high percentage of the population are clerks, stenographers, and draftsmen, who often work with an electric light during the day, and attend some one of our various night-schools at night.

It is precisely in this class of cases that we are most tempted to examine under homatropine. They do not wish to lose any time, and it is only convenient to be away from their work over Sundays. The use of homatropine on Saturday afternoon is the accepted time, and would be very convenient for all concerned if it were efficacious. Before censuring homatropine, or passing its death sentence, I decided to give it a fair hearing, and made a study of the relative influences of homatropine as compared with atropine in one hundred eyes in private practice.

The apology that I have to offer for adding another page to the already lengthy literature on the efficiency of homatropine is that there seems to be such a wide difference of opinion amongst the leading men of the profession as to its efficacy. There is evidently no agreed standard in the minds of the ophthalmic profession as to this mydriatic. Some men never use it, and some few never use anything else. If it is efficient, it has many reasons in its favor why it should be used. If it has any merit, which assuredly it has, that specific merit should be pointed out with clearness so that the student might have something tangible by which he may be guided.

Before proceeding to discuss its place in our refractive work, I will first show the diversity of opinion that exists to-day as to its efficacy. In order that I might get the latest opinions of some of the best known men in the profession, who have made observations on the efficacy of this drug as compared with that of atropine, or some other cycloplegic, I sent to them the following questions:

1. Do you use homatropine as a routine practice in your refractive work?
2. Do you consider homatropine as efficient a cycloplegic as atropine?
3. What is your method of using homatropine?
4. Do you depend upon homatropine

in cases that have a great deal of trouble in getting suitable glasses?

5. In what proportion of your cases do you use atropine?

Most of the men who were kind enough to reply do not use homatropine in refractive work as a routine practice. Amongst these are Oliver, Risley, Reber, Bruns and Robin, and Ellett; while Weeks, Savage, Jackson, and Wood consider homatropine an efficient cycloplegic. Savage considers homatropine as efficient a cycloplegic as atropine; he uses it as a routine practice in his refractive work, and does not use atropine. He employs "one grain to a drachm of water, ten drops in each eye, three to five minutes between drops." Weeks uses homatropine as a routine practice, but does not consider it as strong a cycloplegic as atropine. He uses a one-per-cent solution, one drop every five minutes for half an hour. He uses atropine in less than one-tenth of one per cent of his private cases. Jackson considers homatropine as efficient as atropine when the homatropine is used by the surgeon, and the atropine used by the patient's family. He uses it from three to five minutes, until it has been used six to ten times, dropping it on the upper part of the cornea as the patient looks downward. In his more troublesome cases he uses atropine or hyoscyamine. These he uses in less than two per cent of his cases. Wood uses both the solution and the disks of homatropine and cocaine. In children and difficult cases he uses atropine.

We have heard from those who favor homatropine. We will now hear from the opposition. Oliver never uses it, "because if employed in sufficient quantity to produce cycloplegia, it will irritate the choroid and give rise to uncertain work." He does not consider it as efficient a cycloplegic as atropine. He uses scopolamine in private work and atropine in public. Ellett does not use homatropine as a routine practice. He never feels certain of his results in cases of slight degrees of astigmatism, but prefers the disks to the solution. He uses atropine frequently. Reber does not use homatropine. He considers it the weakest and most untrustworthy mydriatic of the whole list, and entirely useless in troublesome cases. He uses a one-tenth-per-cent

solution of hyoscyne hydrobromate, which he considers as efficient as atropine, with but few exceptions. Bruns and Robin do not use homatropine in their refractive work. They consider that it is not to be compared with atropine, and never think of using it on difficult cases. They use atropine in a very high percentage of young subjects. Their experience with homatropine at the State Normal School, where for school reasons a temporary cycloplegic is greatly to be desired, forces them to conclude that it gives results that are deceptive.

With this review of the discrepancy of opinion from the leading men of the country before us we are ready to make a comparative study of its clinical results with that of atropine when used on a series of difficult cases. In each of these cases the patient was examined first under homatropine, one grain to a drachm, one drop in each eye every three to six minutes until it had been used eight to ten times. The drops were placed on the upper border of the cornea (Jackson) and allowed to run over the eye. The control test was made by reading of fine type with plus lenses, retinoscopy, the ophthalmometer, and the trial lenses. The same care was used in each case, and the same light and retinoscope, and other tests made. Great care was observed in making the skiascopic examination. Glasses were given in each case, and worn from one to six months before the eyes were tested under atropine. Not being entirely comfortable after a sufficient trial of the lenses, atropine was used in six grains to the ounce solution, one drop in each eye three times a day for three days. Examination was then made as was done while under homatropine. The glasses given under the atropine gave better results in every case. The personal comfort of the patient should be considered the most efficient test, and where it is not secured our work is a failure.

I have made these examinations, as above indicated, in one hundred eyes (fifty cases) taken from private practice. We are all well aware that it is in private work that we meet the most difficult cases. It is amongst the better-to-do class, that are leading the "strenuous life" and are by nature delicate, that we

are forced to make the most accurate corrections and adjustments, and it is in private practice that we are expected to do the best work. These cases were examined with all the care and skill that I possess. I at first thought that homatropine was at least efficient enough to be recommended in most cases, but my statistics hardly justify such a conclusion. I have selected these cases from those that have had some difficulty in getting suitable glasses, and many of them had been fitted by other men before coming to me. I herewith append a brief table of my cases. In the table the word "increase" means that the refraction was increased under the influence of atropine as compared to what it was under the homatropine. "Decreased" means that the refraction was found to be less under the influence of atropine than under homatropine. "In. & Ch. A." means increase and change of axis. "Ch. A." means change of axis.

Case.	Increase.	Astigmatism.	Case.	Increase.	Astigmatism.
1	Same.		51		
2	Inc.	Inc.	52	Same.	Inc.
3	Same.		53	Same.	
4	Inc.		54	Same.	
5	Inc.	Inc.	55	Same.	
6	Same.		56	Inc.	Inc.
7	Same.		57	Inc.	
8	Same.		58	Same.	
9	Same.		59		Inc.
10	Inc.	Inc.	60	Same.	
11		Inc.	61	Inc.	Inc.
12	Inc.	Inc.	62	Inc.	Dec.
13	Inc.		63	Inc.	
14	Same.		64	Inc.	
15	Same.		65	Inc.	
16		Inc.	66	Inc.	
17	Inc.		67	Inc.	Ch. A.
18	Inc.	In. and Ch. A.	68	Same.	
19	Same.		69	Inc.	
20	Inc.	In. and Ch. A.	70	Same.	
21	Same.		71	Inc.	Ch. A.
22	Same.		72	Inc.	Ch. A.
23	Inc.	In. and Ch. A.	73	Same.	
24	Inc.	Dec.	74	Inc.	
25	Inc.		75	Same.	
26	Inc.		76	Same.	
27	Inc.		77	Inc.	
28	Inc.		78	Inc.	
29	Same.		79	Same.	
30	Inc.	In. and Ch. A.	80	Same.	
31	Same.		81	Inc.	Inc.
32	Same.		82	Same.	
33	Same.		83	Same.	
34	Inc.	Ch. A.	84	Inc.	Dec.
35	Inc.	Ch. A.	85	Same.	
36	Inc.		86	Same.	
37	Dec.	Inc.	87	Same.	
38	Same.		88	Inc.	Inc.
39	Same.		89	Same.	
40		Inc.	90	Inc.	Inc.
41		Inc.	91		Inc.
42	Same.		92	Inc.	
43	Inc.	Ch. A.	93	Same.	
44	Same.		94	Inc.	
45	Inc.	Ch. A.	95	Dec.	
46	Inc.		96	Inc.	
47	Dec.	Inc.	97	Inc.	In. and Ch. A.
48	Same.		98	Same.	
49	Same.		99	Inc.	Ch. A.
50		Inc.	100	Same.	

The above table shows that there was an increase of .25 D. or more in 56 per

cent of the cases; an increase of 0.50 D. or more in 19 per cent of the cases (not shown in the table). The results were identical, or less than .25 D., in 42 per cent of the cases.

The table of Ellett, Memphis (Trans. Amer. Ophthalmological Soc., 1900), shows an increase of .25 D. or more in 69 per cent of his cases, an increase of 0.50 D. or more in 42 per cent of his cases, which disproves the idea that homatropine disks are more serviceable than the drops. This difference may be accounted for in that Ellett did not have all his cases examined at the same place and under the same circumstances. Wood's cases (Sec. on Ophthal. Pan-Amer. Med. Congress, 1893) show an increase of 35 per cent for atropine. Coleman (*Annals of Ophthalmology*, 1893, p. 73) found that there was an increase for atropine in 87 per cent of his cases, and says that he has tested in the same manner as does Jackson without getting the same fortunate results. Holt, Cotter, Agnew, and Webster gave up the use of homatropine a number of years ago.

It is worthy of note that the axis of astigmatism was changed in 13 per cent of my cases, and that there was an increase of astigmatism of 0.25 D. or more, or change of axis of same, in 32 per cent of my cases, either of which condition would in all probability cause the glasses to be unsatisfactory. My case-book shows that these were cases that had had a great deal of trouble, being partially or totally incapacitated from their work and many of whom had sought from many sources suitable glasses.

In the above table I have tabulated no case of more than 2.50 D. of any single error, nor of over 4 D. of any combination of errors. The less the error the greater is the demand for exactness in its correction. Experience has taught us that the most severe symptoms are found in persons with defects of less than 2.50 D. Most of my cases had defects of about 0.50 to 1 D., usually of a compound error, or a low degree of oblique astigmatism. I have for a long time observed that in those cases where there is the most trouble homatropine seems to be less serviceable, or entirely useless. I make a habit of explaining to the patient

beforehand that the homatropine examination is tentative, and that if they still have trouble they must return for atropine.

I think that we are justified in using homatropine in most all cases in persons that are above the age of twenty and not more than thirty-eight, where the symptoms are not severe, with the understanding that if they are not relieved they are to return for longer treatment. By making it plain to them that the homatropine is not so efficient as atropine (Savage and Jackson not concurring in this) we save our profession from the disrepute that might grow out of the bad correction under homatropine. Patients take a second examination much more gracefully, if they are prepared for it at the first examination. It is my custom, in cases that have been the rounds seeking for glasses to relieve their eye-strain, to advise atropine at the first visit, if the age does not preclude the use of that drug. There is no question but that many of these cases have more or less choroidal or retinal irritation and are much benefited by the long rest given by the use of atropine, whereas homatropine not only does not give rest to these tunics, but, according to Oliver, causes more irritation.

From the above observations I venture to draw the following conclusions, which I recognize do not make a standard for homatropine, but which I am convinced can be safely relied upon.

1. That homatropine is not in any way as efficient a cycloplegic as atropine.

2. That the solution of one grain to the drachm, one drop in each eye every three to five minutes until eight to ten instillations are made, seems to be as efficient and safe a solution as any.

3. That homatropine usually, if not always, is inefficient in cases that suffer a great deal from eye-strain, whether there be any indication of retinal or choroidal congestion or not.

4. That it is advisable to use homatropine in cases between the ages of twenty and forty where a cycloplegic is used (and this should be the rule), provided there are no marked symptoms of eye-strain, but at the same time it is advisable to inform the patient that the examination may be only tentative, and they may

have to return for further treatment under atropine.

5. That the use of homatropine is especially indicated in cases that do not suffer severely, and have no time to lose from their work.

6. That homatropine is not efficient in children. Atropine is the most desirable cycloplegic to use with children, and should be employed in most cases. It is by giving accurate corrections in these cases that we are able to prevent intra-ocular diseases that might incapacitate the patient for life.

7. That homatropine has an unrivaled field in elderly subjects for dilating the pupils for more perfect fundus examination.

8. That homatropine is to be commended in troublesome cases near or above the age of forty, in which a long cycloplegic action is not desirable, to enable one to detect slight degrees of astigmatism by means of retinoscopy.

My statistics show that homatropine is entirely inefficient in 30 per cent of my cases. Ellett's statistics show that there was a difference of 0.50 D. in 42 per cent of his cases. Wood's statistics show a difference of 0.25 D. in 35 per cent of his cases, but does not state whether this was in astigmatism or not. We all know well enough that .25 D. does not make any serious difference in most cases, but we also know that the comfort of the patient may be entirely sacrificed by not correcting a .25 D. of astigmatism in cases with small defects. I wish again to call attention to the fact that the axis of astigmatism was changed in 12 per cent of my cases. This may be accounted for in part from the fact that some of these cases had been using cylinders in the wrong axis. But it is just to state that atropine even corrected this discrepancy of axis despite the fact that they had been wearing the wrong glass. We are forced to think that we ought to employ a more effective cycloplegic in difficult cases than one that will mislead us in 30 per cent of our cases. I am convinced that if we would make a habit of using a more effective mydriatic our results would be more accurate, and our profession would suffer less from our mistakes. We are all well enough acquainted with the sneers that the self-

styled refracting optician indulges in when he happens to see a misfit under homatropine, or any other mydriatic. If we wish to deprive these glass venders of their lucrative trade there is no better way than by doing accurate work under an efficient cycloplegic and sending the prescription to a respectable optician.

POINTS IN PALLIATIVE GYNECOLOGY.¹

BY WILMER KRUSEN, M.D.,

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As the Parsee turns toward the sun with adoration, and the devout Moham-medan kneels with his face toward Mecca, so the Philadelphia gynecologist instinctively turns toward Baltimore for inspiration and instruction in matters gynecologic. The preëminence attained by specialists in this line in her various schools has rendered such respect possible. Therefore you can realize my timidity and appreciate my temerity in accepting the invitation of your officers to-night. The subject which I have selected may seem unimportant compared with those larger topics which have often occupied your attention; yet without wishing to underestimate or decry gynecic surgery, I believe that there is a palliative gynecology worthy of our study.

After a careful review of many textbooks, a close attention to distinguished clinicians, and listening to learned discussions in medical societies of both national and municipal importance, and noting the time and attention expended upon surgical gynecology, one may well ask the question, "Is there a medical side to our specialty?"

Successful surgery possesses such a dramatic aspect, such a certainty of result, such a glamor of brilliancy, and is often so lucrative, that it makes the apparently pottering work of gynecologic tinkering seem slow, uncertain, and insignificant. We all love the surgical side of gynecology, and are loath to spend the time and patience which are necessary to secure results in the use of palliative methods. Nevertheless, true conserva-

tism and an appreciation of the patient's view-point should lead us to an investigation of the utility of medical methods in gynecologic work, since there is a certain number of women who positively decline surgical intervention, or in whom there exists some contraindication to operative procedure, and again a certain number who have been the subject of skilful surgery and still suffer disagreeable symptoms.

Patients, like birds, are migratory. Philadelphia women come to Baltimore, drawn thither by the splendid reputation of her renowned surgeons. Baltimore patients occasionally migrate to the City of Brotherly Love, and thus we observe the results of each other's work and know that there are sometimes patients who are not entirely relieved by surgery. So at the risk of carrying coals to Newcastle I have selected the subject of "Palliative Gynecology" for our discussion this evening.

There are certain symptoms common to nearly all forms of pelvic diseases of the chronic type which may be termed the uterine syndroma. These are: (1) increased discharge or leucorrhea; (2) dysmenorrhea; (3) menorrhagia or metrorrhagia; (4) nerve pressure symptoms, such as backache, bearing-down sensation, and vesical or rectal symptoms; (5) pain over the lower abdominal zone, whether constant or elicited by pressure or movement. A review of these symptoms is of course no clue to our diagnosis, and a careful bimanual examination, with or without an anesthetic, must be made to determine whether or not the given case is one adapted to a palliative procedure, or whether radical surgery is indicated; for be it understood that in all cases in which there is evidence of a neoplasm, either benign or malignant, or in which there is a purulent collection in the pelvis, surgery is positively to be employed.

But in that large class of cases of chronic congestion of the pelvic viscera, or in mobile malpositions of the uterus, much can be accomplished by palliative procedures.

1. *The hot vaginal douche.* The chief aim of the vaginal douche, as first suggested by Emmet and Peasley, is to control inflammation and produce absorption of inflammatory exudates. But often

¹Read before the Gynecological and Obstetrical Section of the Medical and Chirurgical Faculty of Maryland, Baltimore, Md.

a lack of understanding of its physiologic effects and therapeutic application has resulted in numerous failures and disappointments. Max Runge, many years ago, made an exhaustive study of the effects of vaginal irrigation upon the circulation and muscular excitability of the uterus, by applying a stream of water of different temperatures to the exposed uterus in living rabbits. As the result of these studies he found that the application of water at 41°F. produced at first strong tetanic contractions, lasting for a full minute, which were followed by rhythmical contractions and relaxations, continuing for some time. When the cold application was continued for ten to fifteen minutes the contractions slowly ceased, the pale color of the uterus, induced by the primary contraction of the uterus under the influence of the cold, giving rise to a pronounced red colorization, showing active movement of the blood through the organ. After the close of the experiment the parts returned to their normal state at the end of half an hour. That the cessation of the contraction was not due to the exhaustion of the uterine muscle was shown by the fact that subsequent applications of heat or electricity gave rise to violent contractions.

Applications of hot water at the temperature of 122° produced, on the other hand, rhythmical contractions of the uterus, but less vigorous than after application of cold, and without any tendency to tetanic contraction, as after the cold application. When the hot application was continued for ten minutes the contractions finally ceased, leaving the uterus as before, and of a bluish color, but incapable of contracting, as shown by applications of cold, electricity, strychnine, and other excitants. No effect whatever was produced, showing that the uterine muscle was, temporarily at least, completely paralyzed. After the lapse of half an hour the uterus acquired its normal condition. Further investigation showed that the passively congested and paralytic state of the uterus, as described, was produced only by temperatures above 104° or very hot applications.

It is interesting to note the similarity, with marked differences, however, between the applications of heat and cold

to the uterus. Stronger and more prolonged contractions were produced by the cold than by the heat. Muscular excitability was not diminished but was palpably increased by the cold application, whereas in ten minutes it was completely obliterated by the hot irrigation.

From these facts it will readily appear that both hot and cold applications may be employed for relieving hemorrhage due to uterine congestion, but that the cold application is a more powerful hemostatic agent than heat. Hot applications, on the other hand, possess remarkable power to lessen and even completely to annul uterine excitability and contractility of the uterine muscle, which is decidedly increased by cold irrigation. But the tendency of cold irrigation to produce painful uterine contraction and to provoke an exacerbation of neuralgic and other pains, to which the pelvic viscera are so particularly subject, accounts for the almost universal preference for hot irrigation in the treatment of pelvic disorders of women.

The application is best made with a fountain syringe containing at least one to two gallons of the fluid, and placed at the height of two to three feet above the patient. The temperature should be as high as the patient can comfortably bear, from 105° to 120° F.

Hot irrigation is indicated when the effect desired is to relieve pain, to promote absorption of exudates, or to stimulate vascular activity in cases of salpingitis or so-called cellulitis.

If antiseptics are desired, lysol, creolin, and mercuric bichloride are useful, and these should be employed whenever there is an offensive or purulent discharge.

2. *The sitz-bath* has its place among the agencies to be used in the treatment of pelvic inflammation, and it should be employed at a temperature from 105° to 120°F.; duration from three to ten minutes. It is well to begin with a temperature of 100°, rapidly adding hot water until the maximum is reached. The cutaneous branches of the external iliac are thus widely dilated, diverting blood from the internal viscera. The sitz-bath is of great value in restoring the menstrual function when suspended as the result of a general chill, or other cause, and is a most powerful analgesic meas-

ure. In cases in which it is employed for the relief of acute visceral congestion, great care must be exercised to cool the surface of the body gradually, so as to restore the tone of the vessels without producing a general and sudden contraction of the surface vessels, which would immediately destroy the good effect of the bath.

3. *Hot rectal injections* are very useful in combating inflammatory conditions in the pelvic viscera. Hot water introduced into the rectum and colon is brought nearer to the appendages than is possible in any other way, and for this purpose may be administered three or four times a day. Reclus prefers a hot rectal injection of 130° to vaginal irrigation or injection in congestion of the pelvic viscera. The colocyther is also a valuable method of establishing intestinal asepsis and relieving constipation, which is often marked in these cases. In addition to the advantages already noted the introduction of very hot water or saline solution into the colon increases blood-pressure, improves and accelerates heart action, and produces a marked effect upon renal secretion.

4. *The ice-bag* is one of the most valuable adjuncts for the relief of pain in pelvic disorders, either applied over the ovarian regions or over the lumbosacral regions. The relief is sometimes instantaneous and surprising, and no physician can afford to ignore its value.

5. *The tampon.* The vaginal tampon is useful to apply medicaments and for mechanical purposes. The best material for a tampon is sterilized lamb's wool, because it is non-irritating, its draining properties are good, it can be introduced and removed with little or no difficulty, and retains its resiliency even when wet longer than any other material. The tampon should never be introduced dry as it will irritate the vaginal mucous membrane.

There are two drugs most useful for tampon application: these are boroglyceride and ichthyol. The hygroscopic action of the glycerin, used alone, or combined with 15 to 20 per cent of ichthyol, is of great value for the relief of pain and for the absorption of inflammatory products. The following prescription is an excellent astringent and antiseptic: Pul-

verized alum 1 ounce, carbolic acid 6 drachms, glycerin 1 pint. When the tampon is used it should be removed in from twenty-four to seventy-two hours, according to its character, and the hot vaginal douche employed.

Popescul advocates the employment of zymin, or sterile permanent yeast, as introduced by Albert. Zymin is prepared as a dry powder, which is mixed with an equal amount of pulverized cane-sugar, moistened with water until of the consistency of syrup, and then applied by means of saturated tampons. This preparation has been found efficacious in cases of gonorrheal inflammation.

Menge advises the formalin treatment, cleansing the uterine cavity by means of hard-rubber sticks wrapped around with pieces of cotton saturated in 30- to 50-per cent solution of formalin, and he has found this intra-uterine formalin treatment valuable in chronic hemorrhagic metritis and other forms of inflammation.

6. *Pelvic massage* as advised by Thure Brandt and others has not obtained the same recognition in this country as in Europe. It certainly is valuable in all chronic inflammatory processes resulting in shrinkage and adhesions around the pelvic organs. In principle, there is only a slight difference between gynecologic massage and massage as used on other parts of the body, because in making the circular rubbings we do not press equally upon all parts, but increase the pressure at one place in the periphery of the circle and possibly in the direction of the venous and lymphatic circulation. The marked contraindications to massage are purulent accumulation in the pelvis, malignant disease, or any acute septic or inflammatory process in or about the uterus. According to Ziegenspeck pregnancy is no contraindication to massage, but personally I should hesitate to employ it during that period.

It has been said by an Englishman that "massage in gynecology is masturbation of a woman by a man," but I believe such a statement is unwarranted, although a prominent Philadelphia gynecologist has voiced the same sentiment. The chief objection to pelvic massage is that few patients are willing to submit to the pain and discomfort of treatment when the results are so slowly obtained; and it is

often better to abandon the palliative treatment and resort to the surgical in dealing with these chronic cases. No one is capable of practicing pelvic massage who is not proficient in gynecologic diagnosis. Disagreeable as it may be, massage during menstruation often produces favorable results. The bands of adhesion are softer and more elastic at that period, and the stretching must be done with extreme caution. It is the combination of massage and stretching which constitutes the most important part of Major Brandt's invention. I think that we may undoubtedly class pelvic massage as one of the important therapeutic measures of gynecology to be employed, not to the exclusion of surgical procedure, but in properly selected cases as an experiment before resorting to surgery.

7. *Atmokausis*, or the injection of free steam into the uterine cavity, and *zestokausis*, or the circulation of steam through metal tubing without coming in actual contact with the endometrium, were first employed by Sneigrew, the instrumentarium being perfected by Pincus. Since 1898 these methods of cauterizing the endometrium by steam have had an extensive vogue in Germany; but we agree with Hirst that such a cauterization is difficult to regulate, is not entirely safe, predisposes to cervical stenosis or atresia, and may obliterate the uterine cavity. There seems to be little to recommend this treatment in preference to other methods more easily controlled, safer, and quite as efficacious.

8. *The pessary*. Will it be possible for me to escape being classed as antiquated if I enter upon a defense of the pessary as a means of uterine support? In these days when half a hundred operations, which have been devised for shortening, twisting, manipulating, protruding, or excising the round ligaments, are in vogue; when such marvelous ingenuity has been exhibited in producing some slight and infinitesimal modification of previous operations upon these two little guy ropes which run from the uterine fundus to the inguinal canal; when from the time of Alexander and his extraperitoneal method to the days of Wylie, Dudley, Baer, Mann, Gillam, Ferguson, Bardescu, Goldspohn, Baldy, and Montgomery, and almost a score of others, who have de-

vised procedures employing this little ligament, which ought to swell and strengthen with a sense of its own importance until it becomes a most efficient means of uterine support—all these gynecologists have studied to perfect some surgical method for the cure of malpositions of the uterus—will I dare to call attention to a prosthetic method which has relieved many women without resort to celiotomy?

The pessary has a definite place in the armamentarium of the general practitioner and the gynecologist. It has often been abused because improperly selected and adjusted. It has its positive indications like all surgical appliances. It must be carefully fitted to the individual case, as any haphazard introduction will give rise to many discomforts instead of relief. In cases of mobile retrodisplacements, or in prolapsus with a fairly good pelvic floor capable of retaining the instrument, its use will often give satisfactory results.

Time will not permit a reference to all the variety of pessaries which have been invented since the days when Hippocrates introduced a split pomegranate into the vagina for prolapsus of the uterus; but it may be well to say that the hard-rubber pessaries of the Hodge type, particularly those modified by the thick posterior bar, have given the best results.

Indications for pessaries may be summarized briefly into those cases of retrodisplacements of a freely movable uterus in which the ovaries are not prolapsed, nor is perimetritic tenderness present; or in downward displacements of the uterus or vaginal walls, in which the vagina permits the retention of the pessary without producing painful pressure.

I believe firmly that there are few of us who will advise an operation on a member of our own family if relief can be secured by a simple mechanical support. Why then should we not give our patients the same conscientious advantage of a palliative method, before rushing them upon the operating table without trying less radical methods? In many cases the relief afforded by a reposition of the uterus, a few treatments with tampons and douches, and the introduction of a pessary for a few months, will effect

a symptomatic cure without resort to surgery.

If there are firm periuterine adhesions or disease of the appendages—*i.e.*, fixation of the uterus in its malposition, producing symptoms—then I would most emphatically urge surgical intervention; but in the class of cases above indicated pessaries will often give complete relief. One is impelled to emphasize this subject after a review of many text-books and an examination of latter-day students upon their knowledge of the function and importance of mechanical methods in gynecology. Let us hesitate then before we relegate the pessary to innocuous desuetude.

9. A résumé of the palliative procedures employed by gynecologists would be incomplete without a reference to mental therapeutics. From the very beginning of the healing art a certain mental or psychologic power or influence has been known and exercised in curing the sick. Braide of England, Mesmer and Charcot of France, have done most to explain this psychologic power and to render it useful. The peculiar influence of one mind upon another, or communion of minds one with another, is a faculty common to all and possessed in varying degrees by each.

Of all the crazes and credulities of the twentieth century, the so-called Christian science ranks preëminent, and is preëminently rank; and we can most assuredly sympathize with Mark Twain, who said with more force than elegance that the perusal of Christian science literature reminded him of a dictionary with the cholera; but if we study the results attained by this so-called science we can determine that it is a hybrid production of varied elements, that there is a dangerous half truth underlying many of its fallacies, and that often the physician in treating neurotic patients, as many of these gynecologic patients are, must become a faith-curist and inspire his patient with that confidence which makes cure possible. Without resorting to the method of the charlatan or the nostrum vender, or following the pathway of a self-satisfied Eddy or an impossible Dowie, a shrewd hypocrite clad in the strange garments of piety, but resorting to the more scientific method of exercis-

ing tact in attracting the attention and concentrating the thoughts of our patients, gaining their confidence and rendering them subservient to a wiser will than their own, we may lead them to forget imaginary troubles and often to bear real ones with greater patience and equanimity. For there is a certain proportion of our patients to whom the words of the poet Churchill will apply when he said:

The surest road to health, say what they will
Is never to suppose we shall be ill;
Most of those evils we poor mortals know
From doctors and imagination flow.

I realize that this is a somewhat caustic allusion to our noble profession, and that I am trenching upon somewhat dangerous ground when I enter the domain of psychotherapeutics, yet how often we observe the immediate effect of the entrance into the sick-room of a man capable of inspiring and dominating his patients; therefore I think I am not in error in including mental therapeutics as part of palliative gynecology.

CYSTS OF THE PANCREAS, WITH REPORT OF A CASE.

By R. P. McREYNOLDS, M.D.,
Philadelphia.

The pancreas is the most securely placed and the best protected from injury of all the abdominal organs. Its situation at the back of the abdominal cavity, resting upon the crura of the diaphragm and great vessels, covered by the stomach and ascending layer of the posterior parietal peritoneum, wedged in between the duodenum and spleen, renders its approach so difficult that all operative procedures upon it must of necessity be accompanied by more than the usual amount of danger. It has been one of the last of the abdominal organs to receive attention from surgeons, and consequently has just commenced to reap the benefits accruing from modern aseptic abdominal surgery. But although the surgical life of the pancreas is yet in its infancy, the amount of work already accomplished is marvelous. I think it may be said that upon the pancreas modern aseptic surgery has reached its crowning glory.

Virchow in his post-mortem examinations (1876) remarks upon the slight importance of the pancreas. It seems strange that a man so astute should have failed to have seen and appreciated the important part this gland plays in the human organism. The prophecy made by Dr. Nicholas Senn in 1886, that the surgery of the future will undoubtedly deal with contusions and lacerations of the pancreas with visceral injuries of some of the abdominal organs, has been more than fulfilled.

The pancreatic cyst was one of the first pathological conditions to receive surgical attention, and the successful operations for this condition added new surgical interest to the study of pancreatic diseases, and has resulted in the elucidation of many interesting facts concerning its pathology and physiology. The field for operative work has gradually and progressively widened, until today we find it embracing such conditions as pancreatitis (acute hemorrhagic, suppurative, or gangrenous, and chronic interstitial); hemorrhage of the pancreas; pancreatic calculi; tumors of the pancreas, etc.

Cysts of the pancreas are not now considered rare conditions. In 1882, when Gussenbauer reported his case and called attention to the diagnosis and treatment of such cysts, there were but few cases on record. In 1885 Senn collected six cases; in 1886 he added four more, making ten in all. In 1893 Ashhurst, quoting Heishe, reported thirty-six well authenticated cases. In 1902 Korte collected one hundred and seventy-seven cases. A number have been added to the literature since this time.

The best classification of pancreatic cysts is, I think, that given in E. von Bergmann's System of Practical Surgery, and ascribed to Dieckhoff, Tilger, and Lazarus:

1. Retention cysts of the pancreatic duct.
2. Proliferation cysts, or cystadenomata.
3. Retention cysts due to obstruction of the minor branches of the pancreatic duct, the result of interstitial pancreatitis. The inflammation may be of traumatic

origin, or it may be an ascending inflammation from the intestine.

4. Cysts that develop by softening in tumors (carcinoma) by the digestion of encapsulated hemorrhage, and by degeneration of part of the pancreas in acute pancreatitis.

5. An inflammatory or traumatic exudate may rupture into the lesser peritoneal cavity and so simulate a cyst of the pancreas. Such a false cyst has been observed after necrosis of the pancreas without gangrene.

True pancreatic cysts (cysts large enough to be palpated and to require surgical attention). It seems proven that these cysts are not produced by the mere obstruction of the pancreatic duct; before the cyst can be produced there must be first some interference with the natural absorptive power of the gland. There must be an atrophy or degeneration of the parenchyma (Senn), or perhaps an inflammatory process. In a certain proportion of cases, as proven by Opie, a calculus lodged in the diverticulum of Vater could divert the bile into the canal of Wirsung. The irritating effect of the bile in case it should infiltrate into the pancreatic tissue would be sufficient to produce an acute or chronic inflammation. In this manner, or from syphilis, or from an infection finding its way in from the duodenum, or as a part of a general sclerosis, we get a diseased organ, and this must be the first step in the formation of a cyst. The normal physiological function of the parenchymatous cells being altered and no longer able to absorb the secretion, which cannot escape through its natural channel, a cyst (a true cyst of the pancreas) results. In chronic interstitial pancreatitis from any cause the formation of connective tissue and the contraction incidental thereto may be sufficient to partially or totally obliterate the canal of Wirsung or some of the accessory ducts. In such cases a cyst may or may not form, depending on whether or not the fluid is secreted and absorbed, or secreted and not absorbed, or not secreted at all. The duct may be obliterated by causes extraneous to the pancreas—i.e., from peripancreatic inflammations with the formation of adhesions; tumors so situ-

ated in or around adjacent organs that the pancreas is pressed upon. Cancer which frequently attacks the pancreas may be so situated that it will obstruct the duct.

Hemorrhagic Cysts.—When there is a hemorrhage into the pancreas the blood is encapsulated within the pancreas, and if the patient survives the primary shock a true hemorrhagic cyst of the pancreas may result from digestion of the blood, or there may be a necrosis of the organ. Probably the most frequent occurrence is hemorrhage into the cavity of a pre-existing cyst of the pancreas. Such cysts might result from the sudden and violent forcing of the bile or gastric contents (?) into the canal of Wirsung, or from trauma (a kick or blow over the abdomen). It would be much more liable to happen in an individual who was suffering from gastropexia of stomach or intestine, for the pancreas would then be deprived of part of its normal covering.

False Cysts.—This is a cyst in which the lesser peritoneal cavity is filled with blood, resulting as a rule from trauma; the pancreas itself is ruptured, or some of the blood-vessels adjacent or within it. The blood extravasates into the lesser peritoneal cavity. The following case illustrates well the formation of such cysts (*Lancet*, Feb. 4, 1905, page 306):

"Hadra, of San Antonio, Texas, records the following case: A boy nine years old was riding down-hill on a bicycle and was struck in the epigastrium by the handle-bar. Faintness and vomiting were present, and some hours later he had abdominal pain, which was relieved by opiates. Improvement occurred, but it was slow, and he did not gain his normal health. The chief symptom present was an excessive and a perverted appetite. About three weeks after the injury a definite swelling appeared in the epigastrium. There was evidently a collection of fluid behind the stomach, which stood out in high relief, with well marked borders, and the transverse colon could also be defined. The diagnosis made was rupture of the pancreas with leakage into the lesser peritoneal sac. The swelling was incised between the stomach and transverse colon, and about

a quart of fluid was evacuated, alkaline, and possessing amylolytic properties."

Symptoms.—Men and women are equally affected; there seems to be no predilection between the sexes. It is more frequent in adult life. Dennis reports a probable pancreatic cyst in a child nine months old. The local symptoms are the most important: early we have indefinite pain or discomfort in the epigastrium, accompanied by more or less intestinal indigestion and gastric disturbances (the latter are the most marked as a rule); later the appearance of a tumor in the epigastrium.

The severity of the gastric symptoms depends upon the way the tumor grows; if the stomach or transverse colon is pushed against the abdominal wall the disturbance will be more marked than if it is displaced upward or downward, or if the cyst grows in between the stomach and transverse colon. This point is well illustrated by the history of two cases operated upon and reported by Knott (*Lancet-Clinic*, Cincinnati, 1904, n. s. liii, 627, 630). In the first case the stomach was flattened out against the anterior abdominal wall; the functional disturbances were very pronounced; the diagnosis of pancreatic cyst was made before operation. In the second case, although there were two cysts, the stomach was not so much interfered with, and the gastric symptoms not marked. A diagnosis of cystic tumor of the right kidney was made before the operation.

In traumatic cysts (generally false cysts) pain and general disturbances are much more pronounced than in cysts which develop slowly; there is a history of pain, colic, and more or less indication of inflammatory disturbances, etc.

Diagnosis.—This is not always easy, and a great many of the cases are not diagnosed until the time of the operation. We should consider the history, the presence of a rather hard, fluctuating, painless, slow-growing tumor situated in the upper abdomen, in the median line or a little to the left of the median line, with the greatest prominence of the mass below the navel. Dilatation of the stomach with air will show the retroperitoneal position of the tumor, and relative positions between stomach and tumor; this

will vary, depending on whether the cyst develops in the lesser peritoneal cavity, between the stomach and transverse colon, or above the stomach, pushing forward the gastrohepatic ligament and coming up between stomach and liver, or between the layers of the mesocolon. The presence of sugar in the urine is of very little diagnostic interest, but the recent discoveries made by Mayo Robson and P. J. Cammidge (*Lancet*, March 19, 1904), of a new reaction in the urine of persons suffering from pancreatic diseases are apparently of the greatest value, and seem to hold out hope for a pathognomonic sign for pancreatic diseases. Puncturing the cyst in order to get some of the fluid for examination is dangerous and ought never to be done. A number of cases have been reported where the stomach or intestines have been flattened out against the anterior abdominal wall in such a way that a puncture would have resulted in perforating these organs. If a correct diagnosis is not made before, it should be established at the time of operation by noting the point from which the cyst has its origin. The positive diagnosis can frequently only be made after a careful examination of the fluid; this will enable us to differentiate between pancreatic cyst, echinococcus cyst of the liver and spleen, cystic disease of the suprarenal capsule, cyst of the ovary, circumscribed peritonitis with exudate, hydro- and pyonephrosis, ascites, etc.

Treatment.—This is clearly to suture the cyst wall (either *in toto* or partially excised) to the abdominal wound and drain the cyst cavity. Complete enucleation has been successfully done and is the ideal operation, but the mortality accompanying it is too high, and consequently it should not be attempted in most cases. *False cysts* should if possible be prevented by early operation. A ruptured pancreas can be successfully sutured and the hemorrhage stopped, provided the diagnosis is made early enough (see report of interesting case in *Lancet*, Feb. 4, 1905, page 291).

Prognosis.—When the cyst is opened and drained it is good.

I submit for your examination this woman operated upon four months ago. The history briefly outlined is as follows:

Mrs. K. (partial excision and drainage of pancreatic cyst; operation November 4, 1904; recovery), a strong, healthy Irishwoman, aged forty-nine. Has had twelve children; no miscarriages. No inflammatory diseases of the pelvic organs. The menstrual history normal. Two years ago, apparently without cause (no history of injury), she noticed a slight soreness in her abdomen; this continued, but it was so slight that she did not think it worth while to consult a physician. The abdomen gradually enlarged, but gave her no marked pain or discomfort; her general health remained good. Three weeks before admission she became alarmed on account of the increasing size of her abdomen, and consulted Dr. Gregory, the family physician, who diagnosed ovarian cyst and sent her to the hospital.

On examination we noted the following points: A woman apparently fifty years old; her face has somewhat of the "facies ovariana" appearance, unhealthy, yellow complexion. The thoracic organs apparently free from organic disease, but the heart is somewhat pushed upward and its action interfered with (pulse weak, rapid, and of small volume). The arms are slightly wasted and the legs very much so; the muscles over the whole body are flabby and poorly nourished. The abdomen is symmetrically enlarged to the size of a full-term pregnancy; on palpation we find a rather hard, fluctuating tumor which fills nearly the whole abdomen; on percussion we get dulness anteriorly and tympany in the flanks. The vaginal examination showed uterus of normal size and movable; the adnexa could not be felt. The examination of the urine was negative. We diagnosed an ovarian cyst with a long pedicle.

Operation November 8, 1904. The abdomen was opened in the middle line; omentum found adherent to a large cyst sac, which filled apparently the greater part of the peritoneal cavity. The omentum was stripped off, and the cyst tapped; between eight and ten quarts of dark, chocolate fluid drawn off. The sac was then drawn through the abdominal wound and an effort made to enucleate it; this was found to be impossible on account of the numerous adhesions

(especially marked were the adhesions to the right lobe of the liver). I then cut off a part of the sac and stitched the remainder to the abdominal wound. I placed strips of gauze around the cyst and drained the cavity with rubber drainage-tube, and gauze; the lower angle of the wound was sewed up with interrupted sutures. The woman lost very little blood during the operation, but nevertheless she was frightfully shocked and left the table in a bad condition. However, she soon rallied, and proceeded to make a good, uneventful recovery. It was apparent at the time of the operation that the cyst had grown up between the stomach and transverse colon; the colon had been pushed down as far as the pelvis. She had some irregular temperature following the operation, but this apparently gave her no trouble, for she complained of no pain and felt fine during the entire convalescence.

The fluid taken from the cyst at the time of operation was lost, but some collected at the dressing next day, which was sent to the pathologist, showed the presence of pancreatic ferments. The examination of the excised cyst wall demonstrated nothing distinctive (simply an inflammatory cyst wall).

The examination of the urine (urine after the operation) failed to give the reaction described by Robson and Cammidge, but as this was the first time the test had been made, and since only one test was made, no importance can be attached to the negative result (it resulted no doubt from some error in the examination, which is a very complicated and difficult one to make).

Remarks.—The mistaken diagnosis of ovarian cyst may perhaps be pardonable; it has occurred a great number of times. We are much more apt to be on the lookout for ovarian cyst than for a pancreatic cyst.

The shock at the time of the operation was probably caused by the manipulation of the sac, and some disturbances of the solar plexus.

The small sinus existing now (about one inch in length and discharging fluid) is caused no doubt by folding in of the skin; in stitching the sac to the abdominal wound a few of the interrupted su-

tures were brought out through the skin. This was a mistake; the sac should have been stitched to the peritoneum and fascia (exactly as we stitch the gall-bladder). The fluid from the cyst caused no marked excoriation of the skin around the wound.

The packing placed around the cyst was not necessary, for it has been proven that the fluid from such a cyst is probably not infectious or irritating enough to cause peritonitis.

A complete enucleation of the cyst would have resulted fatally. The position of the transverse colon (somewhere near the pelvis) has apparently caused the woman no trouble.

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THE GENERAL PRACTITIONER AS A TEMPORARY OPHTHALMOLOGIST.

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The summer season brings to the general practitioner, whether in the city or at the resorts, a class of cases which, while decidedly coming under the head of the minor "ills that flesh is heir to," may, and often do, give rise to much complication and distress.

Foreign bodies in the eye, either in its conjunctiva or cornea, are prone to more frequently occur between spring and fall, not only because people are less confined to their homes than during the cold of winter, but also because of the characteristically American habit of "taking a vacation," and with travel comes one of its incident ills, the "cinder in the eye."

Of course, occupations of various kinds will always furnish their full quota of the foreign body cases irrespective of the seasons, for the labor of the iron-workers, the stone-cutters, the emery-handlers, like the babbling brook, "goes on forever," and the iron-scale, flint, emery, lime, and sand will continue to furnish the physican with routine cases of foreign body, regardless of summer's heat or winter's cold, and the laborer, with a mote in his eye which feels to him like more than a beam, is one whom, like the poor, we have always with us.

The first thing the average man or woman who gets a foreign body in the eye does is to vigorously rub and scrub at the lids until intense conjunctival congestion is established; then the case is handed over to a lay friend, who furnishes his modicum of knowledge of the subject in the form of blundering helplessness. Following this the party adjourns to the nearest drug store, and the tender mercies of the apothecary are invoked, and his highly trained skill in such cases is employed in adding to the already existing irritation, until at last, when the patient has exhausted every other means—crab's-eye, flaxseed, tea-leaves, milk, etc.—a visit to the doctor is decided upon, and thus the case presents itself.

The general practitioner has to be, like St. Paul, "all things to all men," and so it is quite within his scope to remove foreign bodies in the eye and treat the effects of the traumatism. By "foreign bodies" is understood, of course, those substances which lodge on the surface of the cornea or conjunctiva, and not the foreign bodies which actually penetrate the eyeball itself.

It seems to be understood that the general practitioner is fully capable of handling this class of cases, and yet experience has shown, time and again—no doubt entirely through lack of time, amid the many pressing demands upon his attention, to perfect himself in the technique of this comparatively simple operation—a lamentable lack of manual skill in the removal of foreign bodies, and a general indefiniteness of knowledge either of the anatomy and histology of the parts involved, or of their physiology. Always, also, when it comes to treatment of the

after-effects, do we find that neglect of apparently minor details which causes failure of attainment of that great ideal, perfection; for "trifles make perfection, and perfection's no trifle."

A few words, then, as to the proper handling of these cases may not, at this time, be amiss.

Cinders are the most common foreign bodies found, and the severity of the condition caused by them depends upon whether the cinder is hot or cold upon its entrance between the lids, whether it has dull or sharp edges, and the length of time it remains in the eye. Cinders from anthracite coal, practically always sharp-edged, rarely rest upon, but nearly always embed themselves in, the cornea, when that is the part impinged upon. When hot, a zone of superficial inflammatory infiltration is formed almost at once. Fortunately, the tears cool a hot cinder rapidly, and usually do so before it can burn its way deeply into the tissue.

When allowed to remain, a lymphatic infiltration occurs, followed by an ulceration which allows the foreign body to slough out, leaving behind a scar or "macula" of the cornea, which in the young can sometimes be removed by appropriate measures, but rarely in those past early youth.

Iron or steel particles, sharp-edged also, shortly after their deposit on the cornea give rise to a surrounding ring of brownish stain, the rust or oxidation of the ferro-ferric oxide which rapidly forms. When present, this must be removed as well as the offending scale, by a gentle curettage, care being taken that not too many of the corneal layers are abraded, otherwise the anterior chamber may be entered, or iritis set up, with a consequent hypopyon, or a corneal slough.

Lime at all seasons, and the irrepressible small boy on Independence Day with his gunpowder, furnish their share of foreign bodies, but, curiously and fortunately, lime and gunpowder are the two substances which do not apparently excite suppuration (Fuchs).

Grain beards cause much irritation because of the rough, file-like edges of the awn or beard, which easily abrade the corneal surface, and often, by their colorlessness, are very difficult to detect.

Eyelashes never remain upon the cornea, but are pushed at once onto the conjunctiva, lodging, in the majority of instances, in the inferior sulcus, and left there as flotsam by the tearflow, and, of course, are consequently easily removed.

Insects are another cause of trouble in the summer-time by the frequency with which they fly into the eye, and whether it is a characteristic of some of the smaller species of gnats, or whether it is a question of idiosyncrasy, the fact remains that, from time to time, cases appear in which the gnat after its introduction into the sulcus has been the cause of a rapid and violent inflammation of the edematous type, until the conjunctiva has protruded between the nearly closed and swollen lids.

Lastly, tobacco ashes are a frequent source of irritation to the eye, but, being soft, and easily washed out, seldom give rise to prolonged inflammation.

When a patient presents himself complaining of "something in the eye," a regular routine should be followed.

Seat the patient facing a fairly strong light, and try all milder measures first, without cocaine, to find and remove the foreign body.

Cover the patient's hair with a towel, and take up a position directly behind him, tilting his head back until it rests against the chest or abdomen of the operator. Separate the lids (which are nearly always closed from the existing photophobia) of the injured eye gently with the thumb and forefinger, and glance over the visible parts of the conjunctiva and cornea. This will often disclose a foreign body which can be easily and at once removed by a pencil point wrapped in cotton, without subjecting the patient to the annoyance and delay of using cocaine, with its partial paralysis of the accommodation and dilatation of the pupil. Do not, however, let the examination end here, as there are frequently two or more foreign substances to be removed.

Evert the lower lid by drawing down upon the skin of the lower lid with the finger, and examine the sulcus for lashes, or other extraneous material, which, if present, can be wiped out with the cotton on the pencil previously spoken of, or the tip of a handkerchief. Next examine the bulbar conjunctiva above by drawing up

the upper lid with the tip of a finger. Then, to inspect the under surface of the upper lid, tell the patient to look downward, and this will bring the eyelashes down on the cheek, where they can be grasped by the thumb and forefinger of one hand and the lid drawn downward and outward, while the tip of a finger of the other hand presses the upper surface of the lid downward and inward, over the tarsal cartilage, until the cartilage everts with a little jerk, thus exposing almost the entire under surface of the upper lid.

This is the "laying of the eyeball entirely out of its socket, on the cheek, and scraping behind it to get the cinder out," which is so often solemnly detailed by the patient to a wondering group of listeners. Should the foreign body present itself upon the inner surface of the upper lid, it can be wiped away at once, in the majority of instances, without further trouble.

To replace the lid, slide the ball of the thumb down over the lid as the patient is told to look upward, and the tarsal cartilage will regain its original position at once.

Next examine the cornea, and if the foreign body is not visible to the naked eye in direct illumination, use a magnifying lens as a condenser, and turn the patient's head sidewise to the source of light, and the offending object will stand out so as to be easily observable in the oblique beam of light.

Frequently, on looking directly at the cornea, the foreign body cannot be distinguished because of the mottled background furnished by the iris.

Failing to find any foreign material on the cornea, a cotton-wrapped probe, swept through the upper sulcus, under the upper lid, will after the application of cocaine often bring it to view.

When found, and not easily removable, owing to its being too firmly embedded, or due to the sensitiveness of the tissues, cocaine should be used. A four-per-cent watery solution is of sufficient strength, and a few drops of this, repeated in five or ten minutes, and followed by a drop or two of adrenalin chloride solution (one to one thousand), will temporarily remove all sensation from the cornea and conjunctiva, and the adrenalin will so bleach the conjunctiva by its powerfully

astrigent action that a foreign body is readily seen which would otherwise, in many cases, be masked by the congestion of the mucous membrane.

The instrument used to remove foreign bodies should be, if possible, the regular eye-spud, although in emergency a sewing needle, or the point of a penknife even, can be used, first sterilized by a flame, care being taken to approach the eye with the instrument held nearly parallel to the eyeball, and never at right angles to it, and thus avoiding the possibility of further injury to the ball by any sudden movement or flinching upon the part of the patient.

Press the first finger of the left hand above, and the second finger below, the eyeball, and partly into the socket, to separate the lids and immobilize the ball, so that a clear and steady field for further procedure may be had.

Then with a gentle scraping motion lift or roll the foreign body out with the instrument, but never with a digging motion, unless it is so embedded that this procedure is absolutely necessary. If a magnifying glass is used, the corneal layers will be seen to come away, when the scraping necessary to remove iron rust is performed, leaving an appearance like that of the layers of an onion.

If possible, wipe the foreign body from the instrument upon a tuft of cotton, or other white substance, so that the patient may see it for himself, otherwise, when the effect of the cocaine has passed, the mucous glands in the conjunctiva lining the upper lid, being much irritated and swollen, and scraping the wounded cornea with each wink, will give the distinct impression that the foreign body has not been removed, and the patient will go to some one else for help, whereupon the further manipulation of the eye will add to its troubles and dangers.

A thorough washing of the eye with a saturated boracic acid solution should follow the removal of the foreign body, to be succeeded by the further instillation of a drop or two of the adrenalin chloride solution, and the work is accomplished.

For the ensuing forty-eight hours, in cases where much irritation has been set up, the above medicaments may be used by the patient every two hours, a solution of half a drachm of adrenalin chloride

(full strength), ten grains of boracic acid, to seven and one-half drachms of distilled water, having been prescribed. A grain of cocaine hydrochlorate may be added, if it is necessary to relieve some of the photophobia. Warn the patient that he will apparently feel the foreign body in his eye for some hours after its removal, and explain to him that the slight blurring of vision is due to the cocaine, and not from damage caused by the foreign body.

Should the deeper layers of the cornea be injured, or the abrasion be of large extent, the services of an ophthalmologist should be obtained, that proper measures may be taken to avoid iritis, and other serious conditions.

A little attention to technique in the care of this class of minor ills will repay the general practitioner many fold, as such procedures, avoiding, as they do, consequent ulcerations, scars, maculæ, and impaired vision, are of the highest type of preventive medicine—that great goal toward which the eyes of the medical profession in general are turned.

THE ACTIVE TREATMENT OF GONORRHEA IN ITS EARLY STAGES.

COTTON (*Boston Medical and Surgical Journal*, Feb. 9, 1905) concludes from his experience that all cases of early acute gonorrhea except in the presence of some contraindication (such as phimosis or acute folliculitis) do better under active irrigation, which in itself much reduces the severity of the disease, and he believes that the "organic" silver preparations used, not alone, but in combination with copious bland irrigations (potassium permanganate), accomplish definite results by germicidal action.

By following out a routine based on this, varied to suit varying cases, we can effect a very rapid cure in a certain proportion of cases, a very considerable diminution of time of treatment required in the other cases, a very comfortable condition as to symptoms during the course of treatment, and, by no means least, the most efficient limitation as yet possible of the area involved as well as of the duration, and hence the best chance for avoidance of complications and chronic processes.

The Therapeutic Gazette

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Leading Articles.

THE DUTY OF THE GENERAL PRACTITIONER WHEN CALLED TO A CASE OF APPENDICITIS.

The grave responsibility of the general practitioner who is called to attend a case of acute appendicitis is only exceeded by the responsibility of the writer of this editorial, who, if he is mistaken in the views which are enunciated, may by his influence mislead individual practitioners, and so produce results which may give cause for regret. The very realization of this grave responsibility forces upon one a duty which might otherwise be avoided, for the question may well be asked, particularly by general practitioners in country districts, as to what should be their attitude under these circumstances. The *Boston Medical and Surgical Journal* of March 23, 1905, contains a symposium upon appendicitis which without doubt is one of the best which has appeared within recent years, and it is our purpose to call attention to certain of the facts there adduced with the hope that by doing so our

readers may gain the knowledge which we think they are seeking.

The first great difficulty in connection with this matter lies in the diagnosis of the disease. The swelling of the lymphoid tissues in and about the appendix in the early stages of typhoid fever may produce fairly severe symptoms of appendicitis. Gall-stone, gastric ulcer, malignant growth of the bowel, intestinal obstruction, diaphragmatic pleurisy, thrombosis of a mesenteric vessel, and a number of other conditions have been diagnosed as appendicitis, and the true condition only discovered at operation or autopsy. Surgeons and physicians who have had the largest experience with this disease are the ones who are most cautious about being positive of the diagnosis, for they have learned by bitter experience that other maladies closely resemble it in their predominant symptoms. As Dr. Porter well says in his article contributed to the symposium which we have quoted, "one must also consider the age of the patient, the duration and extent of the process, the variety and virulence of the infection, the natural resistance, the presence or absence of adhesions, obesity, marked distention, general complications, anesthesia, rapidity of operation, skilfulness of assistants, and the impossibility of determining without operation whether generalized infection is actually present before it is possible to recommend operative interference."

The question of the severity of the inflammatory process in or about the appendix seems to be overlooked by a considerable number of those who write largely upon this subject. Many of these writers either never see moderate cases of appendicitis, or are overcome by the excessive gravity of the severe cases which come to their attention. In many instances this is due to the fact that the physician does not call the surgeon until the case is beyond his control, with the result that the surgeon sees more severe cases than moderate ones.

We think that there can be no doubt of the correctness of the position which holds that operation should always be resorted to in severe cases of appendicitis at the earliest possible moment, and we also believe that an equally tenable position is that mild or moderate cases can

often be bridged over the acute attack and be operated on in a period of quiescence, which is, according to every one of experience, the most favorable moment for operative interference. It is interesting to note in this connection that Fitz, who may be considered the discoverer of appendicitis, in his article in the journal from which we quote, emphasizes the fact that patients with acute appendicitis can recover without operation, and that recurrences are not constant. To quote Fitz still further, "the collective inquiry of Sahli shows that out of nearly 7000 cases of appendicitis treated medically, nine-tenths can recover without an operation." The absolute frequency of recurrences is unknown. Fitz believes it is as high as 50 per cent.

Many eminent surgeons contribute papers to medical literature in which they assert that immediate operation is to be performed in every case, but in nearly every instance in some other portion of the same contribution, or in other contributions, they so qualify their phrases that they show that this is not their universal custom. Thus, Dr. Maurice Richardson, than whom few have had richer experience in this country, in one part of his article tells us that his practice is now to operate upon all severe cases of appendicitis almost without exception as early as possible after the first symptom, and that he has become fully convinced that the dangers of delay are greater than the dangers of operation. Yet three paragraphs further on he enumerates certain exceptions which would make him change this view, and in the very paragraph that we have quoted we think it of value to call attention to the important adjective "severe," which probably controls his judgment more than any other point in the case. And, again, we find that he says that "every acute case should be operated upon when the symptoms are increasing in severity."

We have already quoted Dr. Porter as emphasizing the importance of considering surgical skill when advising operation, and we find that Richardson believes that the patient's chance will be better, on the whole, if he submits to medical treatment in all cases if the operator be inexperienced. These conclusions are closely in accord with those of most other

operators, and agree, to a large extent, with the conclusions reached by Porter, which will be found in our Progress columns in this issue.

It seems to us that Dr. Fitz "hits the nail on the head" in the following excerpt from his paper:

"It is desirable, therefore, to consider what is meant by the term 'immediate' operation. It is conceivable that a different meaning may be attached to it by the surgeon and by the physician. The former is accustomed to see the patient at a time when the symptoms are sufficiently pronounced to demand operation at once. It may be that the progress of the disease has advanced so far that any operation seems almost hopeless, whereas an immediate operation at any earlier period would have been hopeful. Immediate operation to him is early, timely, as soon as the diagnosis is made, therefore at a stage when only incipient gangrene or beginning ulceration is the worst feature to be encountered. Such operations often are stated to be performed within a few hours of the onset of the disease, although it is highly probable that the production of the stated lesions demands a considerably longer period than a few hours.

"The physician, on the contrary, is called upon to see the patient in consequence of abdominal pain. This may result from various causes, one of which is the onset of an attack of acute appendicitis, which at such a visit should always be in mind. There may be neither elevation of temperature nor constitutional disturbance, and localized tenderness may be slight or absent. Even if the last condition is present, the physician knows that there are instances of appendicitis so mild that no anxiety is aroused, and that recovery or a change for the better may take place within twenty-four hours. The patient requires watching merely, and at this stage should be given a chance of recovery without an immediate operation. If, however, the pain persists, the tenderness increases, with a sharp limitation to the region of the appendix, with or without a tense, guarding muscle, and the temperature rises, longer delay is undesirable. An immediate operation then is called for, and may be performed by an experienced surgeon with but little risk.

But if the physician first sees the patient when the latter is suddenly attacked with intense abdominal pain and there is exquisite tenderness in the region of the appendix, it is probable that perforation or gangrene is threatening or has taken place, and an immediate operation is demanded. In chronic appendicitis, on the contrary, delay is warranted till a convenient period is reached. Recurrent appendicitis should be regarded as a primary attack, and delay be encouraged, if possible, until a well-established quiescent period is reached, when the appendix may be removed at a time when the mortality, according to Ochsner, is only one-half of one per cent.

"The question of immediate operation *versus* delay may be answered as follows: The physician is justified in delay until the conditions call for an immediate operation. These may be present at his first visit or may not appear till a later period. If after twenty-four hours there is no improvement, and especially if the fever increases, an immediate operation is preferable to further delay. The surgeon may be expected to perform an immediate operation upon his arrival under the above circumstances."

THE ABUSE OF DRUGS IN PULMONARY TUBERCULOSIS.

The careful physician at the present time recognizes very clearly that tuberculosis of the lungs cannot be cured by drugs. Indeed, there is some danger that he will be driven from the too free administration of remedies to too great dependence upon feeding and fresh air, and so neglect to employ substances which, while they cannot be considered curative, may nevertheless so modify and mitigate suffering that they are of great use to the patient. It is undoubtedly true that thousands of consumptives in the past have been hurried to their end by the free use of drugs, which frequently so upset the digestive tract that normal quantities of food could not be taken, and in some other instances it is also a fact that in the endeavor to nourish these patients so much food has been given them that the digestive apparatus has been overloaded, and damage has been done.

In the *St. Paul Medical Journal* for

April, 1905, Dr. H. L. Taylor, of St. Paul, writes upon the abuse of creosote in tuberculosis of the lungs, and opens his paper by quoting Osler's statement that the profession was long in learning that typhoid fever is not a disease to be treated by medicine. He then expresses his firm belief that the profession must learn, and is learning, a similar rule in regard to tuberculosis. Of all the drugs which have been employed for the purpose of combating pulmonary tuberculosis, none has had a more general employment than creosote. This wide-spread use of a drug which cannot, in the very nature of things, prove useful except in a very limited class of patients has arisen from three causes: First, the desire of the physician to have some remedy which could be given with the hope that it might be advantageous in a disease in which all remedies fail; secondly, years ago a paper of Dr. Sommerbrodt brought forward the statement that the more creosote that can be taken daily the better the result; and thirdly, Teutonic chemists have burdened the market with a host of compounds of creosote, and its derivatives, with the statement that they possessed all the advantages of the crude drug and none of its disadvantages.

As we have pointed out before in these columns, the instances in which creosote and its derivatives do good in tuberculosis are those in which excessive cough is due to a concomitant bronchitis, and when the condition of the stomach is such that adequate doses of the drug can be taken without disordering its functions. The doses of one to five minims which are sometimes given in tuberculosis, even if they do not disorder the stomach, certainly do not benefit the patient, and too frequently do nothing else than give him a bad taste in his mouth, which is a discomfort for which there is no justification.

PREVENTIVE TREATMENT IN INFECTIOUS DISEASES.

Our increasing knowledge of the bacteriology of disease has called attention to the different means by which infection is spread, and has emphasized the fact that in many cases of infectious disease the malady passes from one person to

another not as the result of touch or of breathing the air in the same room, but by reason of the fact that the discharges of the patient are often laden with germs. In cases in which the infection passes by the urine or feces, the bulk of these discharges impresses one with the necessity of thorough disinfection. But there can be no doubt that in tuberculosis, scarlet fever, diphtheria, malignant tonsillitis, and pneumonia, infection is often spread not by quantities of sputum, which are readily seen, but by infinitesimal droplets which the patient discharges in coughing or sneezing, in much the same way that dust particles in the air of a room become manifest when a ray of sunlight traverses it. So, too, these tiny particles of sputum become manifest if the patient coughs or sneezes in such a way that the current of air from the mouth or nose is driven across such a ray of light. Further than this, if such a draught of air is allowed to strike upon articles of raiment or upon culture media, it is very constantly found that infection of these surfaces has occurred. In other words, it is important that bedclothing and objects which have been near patients with these diseases should be thoroughly disinfected before they are used by others, and where one attack of a disease does not confer immunity, they should be disinfected before they are further used by the invalid himself.

A research illustrating the manner in which infection may be spread in the ways to which we have referred has recently been published in the *Journal of the American Medical Association* by Hamilton, who has proved that streptococci are expelled from the mouth in invisible droplets of sputum, by coughing, speaking, whispering, sneezing, or breathing forcibly through the mouth, and that they may be expelled to a distance of at least 30 centimeters. Thirty-three out of fifty scarlet fever patients were found to expel streptococci in coughing, and forty-two out of fifty normal adults were found to do likewise. These facts emphasize the point that patients with scarlet fever who also suffer from severe streptococcic complications should be isolated from patients without such complications, and this is the more important when we remember that cases of the type just described are

always more difficult to treat and more grave in their character than are ordinary uncomplicated cases of scarlatina.

This is not the first research made by Dr. Hamilton which has important bearing upon the dissemination of infectious diseases, and we trust that she will continue her investigations still further, and thereby aid active practitioners in combating maladies which too often are spread through carelessness.

MAMMARY CARCINOMA.

While the modern operation for relief of cancer of the breast, if carried out thoroughly and in all its details, will almost surely prevent a local recurrence and lessen the incidence of thoracic metastasis, there seems to be a relatively increasing frequency of cases of abdominal recurrence, particularly in the hands of the most experienced operators. Thus of 100 cases published by Watson Cheyne there was a visceral recurrence in fifteen, ten of which were abdominal and five thoracic.

As a result of a study of this subject Handley (*Lancet*, April 22, 1905) argues that permeation is perhaps the main factor in the dissemination of cancer, quoting from Stiles, who states that the lower and inner margin of the breast overlies the sixth costal cartilage, a part of the circumference of the gland being not more than one inch from the interspace between the ensiform and the seventh costal cartilage. Thus as soon as the parietal permeation has extended for this distance beyond the limits of the breast the cancerous lymphatics of the deep fascia are no longer separated from the subserous fat by bone and muscles, but simply by a single layer of fibrous tissue traversed by lymphatic channels; the transversalis fascia at the tip of the ensiform cartilage being hardly recognizable as a distinct layer, and the parietal lymphatic plexus being separated from the subperitoneal fat simply by the linea alba. It is thus obvious that through this weak spot cancer may reach the peritoneum before it has invaded the pleura. Handley in at least two cases histologically proved the epigastric invasion and discovered in post-mortem records fifty-three uncomplicated cases. He also apparently shows

that abdominal invasion is an early event and that the thorax is often involved subsequently; that the liver is invaded in the great majority of cases, and is indeed usually the first organ to suffer.

The author holds that exceptionally cancer cells may fall through the peritoneal cavity and cause direct metastasis before the liver is invaded. The liver may be attacked in either of two ways: free cancer cells may implant themselves on its surface, or permeation may pass along the lymphatics of the falciform ligament to the portal glands and then secondarily extend into the interior of the liver. The breast is indirectly connected with the portal glands of certain afferent lymphatics originally in the anterior part of the convex surface of either lobe of the liver, and thence passing into the falciform ligament opposite to its attachment in the abdominal wall, curving downward and backward, may enter the umbilical notch above the round ligament and pass backward in the umbilical fissure to the portal glands. These lymphatics are connected with the subserous lymphatic plexus in the epigastric angle, and thence with the lymphatics which perforate the linea alba. There is also another lymphatic connection with the breast by means of vessels turning upward at the umbilical notch, passing between the layers of the falciform ligament, piercing the diaphragm, and terminating in glands lying on its upper surface to the left of the middle line between the pericardium and the anterior wall of the chest. Efferent lymphatics pass from these glands to the internal mammary chain, and thus establish connection with the breast. Hepatic involvement through this source would necessarily be late, owing to the two sets of glands which would be permeated.

Attention is called to the rarity of invasion of the anterior mediastinal glands, Handley holding that the perforating lymphatic vessels passing the pectoral plexus are not true afferent lymphatics, but merely anastomotic channels of small diameter and sluggish stream along which embolic transport of cancer cells cannot occur. Torök and Wittelshofer out of 366 necropsies found these glands involved in only 6.5 per cent. They show that pleural adhesions distinctly protect against transpleural implantation.

As a result of his study Handley holds that cancer when it passes the limits of the breast spreads primarily in the deep fascia, and urges that with the complete removal of the breast and all the axillary glands there should be ablation of as wide an area as possible of the deep fascia. Since the mode of fascial extension is by "centrifugal continuous permeation," the area affected is roughly a circle, and the area of fascia removed should also be circular with its center at the point of origin of the primary neoplasm. In order to prevent epigastric invasion the usual incision should be prolonged downward from the linea alba about two inches, the flaps undermined, and the fascia excised as far as the ensiform cartilage, or even lower if the growth is in the inferior part of the breast. Though excision of the overlying skin and of the underlying muscle must be free it need not be carried out over so wide an area as excision of the fascia, for the extension of the growth to skin and muscle is a secondary process.

The author expresses the firm belief that a recognition of the danger of epigastric invasion and the adoption of precise means for its prevention will bring about a further appreciable reduction in the mortality from mammary carcinoma.

THE TREATMENT OF PUERPERAL INFECTIONS.

Although it is true that the observance of ordinary surgical cleanliness will prevent the onset of puerperal infection, it will still occur in the hands of the most careful and conscientious individual. Cases of this complication of pregnancy are always alarming in their onset, are but little influenced by local treatment, and are often fatal in their results. It is a commonly accepted doctrine that streptococci are of predominant importance in puerperal infections, and this view seems to be thoroughly corroborated by the investigations of Foulerton and Bonney (*Lancet*, April 15, 1905), who note as a result of an elaborate series of bacteriological studies that out of fourteen cases of puerperal fever which ended in death ten were instances of streptococcic infection, while in twenty-six severe cases which ended in recovery sixteen suffered

from streptococcic infection of the uterus, and two showed streptococci in the vaginal lochia only, while none of the fourteen cases of slight fever had a streptococcic infection. The next most important organism is the micrococcus pneumoniae, which accounted for three out of the four other deaths. These authors note that with streptococci generally and micrococcus pneumoniae there is such close affinity in respect to pathogenic action that, apart from the question of specific antitoxic serum treatment, the same general treatment may be regarded as applicable to either, and they announce as a rule that in the absence of a specific bacteriological diagnosis it is safe for the practitioner to assume that every case of puerperal fever characterized by a temperature above 102° F. is one of streptococcic infection.

On the basis of their work they reject as unscientific and of no clinical value the old classification of puerperal septicemia and pyemia, and while it is difficult to devise a scheme for the classification of diseases presenting the variety of features shown in puerperal fever, they suggest from a pathological standpoint that infections may be generally grouped under those incident to contamination of lacerations of the perineal tissues or of the vaginal wall, or those due to primary infections of the contents of the uterus or of the placental site. They distinctly oppose active curettage of the uterus as a form of treatment, since this procedure can accomplish little good and may inflict great harm by attacking deeper tissues of the uterine wall. Both the streptococci and micrococcus pneumoniae have little tendency of themselves to infect the deeper layers of the uterine tissue. Digital exploration of the uterus, however, for the removal of retained fragments and the subsequent douching of the cavity of the uterus with antiseptic solutions are distinctly serviceable. As to the antitoxic treatment, since more than one species of streptococcus is met with in puerperal infection it is essential that a polyvalent or compound serum should be used against the various strains of streptococci which are met with in puerperal infection. The authors state that the use of such a fresh serum in sufficiently large doses would surely produce a considerable reduction in the mortality of the disease.

As to preventive measures, and particularly those dependent upon the use of antiseptic douches before the commencement of labor, serious doubts are expressed as to the effect of such douching upon bacteria located in the cervical canal. Though the procedure is regarded as useless, it is held, from the standpoint of laboratory experience, that it is not likely to convey bacteria from the vulva to the upper part of the vagina.

FAT EMBOLUS FOLLOWING THE FORCIBLE STRAIGHTENING OF ANKYLOSED JOINTS.

Fat embolus, though a rare complication of injury, is sufficiently frequent after fractures of bones to have established for itself a fairly clear symptomatology, the major features of which are obstruction of the pulmonary vessels and fat in the urine. As a complication following forcible efforts at straightening contracted joints it is so rare that Borle (*Revue Médicale de la Suisse Romande*, March 20 and April 20, 1905) has been able to collect from literature but eleven cases. This he attributes not only to the comparative rarity of the affection and the failure on the part of many observers to report their cases, but to the circumstance that the diagnosis is often not formulated. Indeed, in slight cases it is not even suspected, since of these eleven cases the true nature of the affection was based on autopsies in ten. Most of them occurred between the thirteenth and twenty-sixth year, one in the eighth year, one in the seventh year. Ten of the patients were women, all of whom perished. In probably ten of the cases the affection for which straightening was required involved both bones and joints. In most instances the knee and the ankle were the joints involved, and the affection was multiple.

As to the symptoms, they may be of a pulmonary, cardiac, or cerebral type. These may be combined.

The pulmonary type is characterized by sudden dyspnea. Auscultation may show râles and harsh respiration. Percussion is usually negative. There is bloody expectoration.

The cardiac type is characterized by extreme rapidity of the pulse, running

sometimes to 180, usually irregular and of feeble tension, though often accompanied by cyanosis. Autopsies have shown in such cases extensive fat emboli of the heart muscle.

The cerebral type is characterized by nausea, vomiting, disturbance of consciousness, varying from simple apathy to profound coma. In one case there were epileptiform crises. Fat is found in the urine. Temperature is in no way characteristic. It may be very high or remain normal or subnormal.

The symptoms have appeared during narcosis immediately after or in the first two days. There is some reason to suppose that the lymphatic diathesis, or so-called status lymphaticus, predisposes to this accident, but merely because in patients in this condition the heart is weak and fails to respond to the increased demand upon it incident to the extensive capillary obstructions.

Borle believes that a condition of osteoporosis distinctly predisposes to the condition of fat embolus. Indeed, he holds this is the principal favoring factor aside from a direct traumatism. Autopsy in eight of the cases showed the presence of bone atrophy and lipomatosis of the marrow. This bone atrophy always exists to some extent in an extremity which has not been functionally active for a long time. In cases of pronounced osteoporosis the maneuvers of straightening a joint may readily produce a stripping of the epiphysis and a squeezing and crushing effect upon the spongy portion of the bone which presses the fat directly into the end of the torn vein.

As for the prevention of this accident the status lymphaticus from reported cases is a distinctly predisposing factor toward a fatal result. The presence or absence of osteoporosis may be determined by a careful history and the use of the x-ray. If this condition be present forcible reduction is not advisable, gentler and more time-consuming procedures being indicated. When the forcible reduction seems distinctly indicated one joint at a time should be attacked. The experienced surgeon can readily determine by his manipulation whether it be the ligaments and fibrous adhesions which are yielding, or the bone itself. In the former case the strong resistance suddenly yields with distinct cracking sounds. In the lat-

ter there is a slight elasticity allowing of partial reposition without any of the sudden giving way typical of ligamentous rupture. This denotes compression of the spongy substance, the cortical part of the bone being driven in by the pressure. Moreover, the correction of the deformity will not be in the joint but will be at the epiphyseal junction.

It is doubtless true that a certain number of cases of sudden death occurring during the course of orthopedic procedures, and attributed variously to shock, pulmonary embolus, or heart failure, without distinct and obvious cause, are in reality due to a fat embolus much more likely to occur as a result of the pressure and leverage exerted at the ends of the long bones, which have been previously subject to inflammation, than in the case of fractures of previously healthy bone. The mortality is dependent upon the quantity of fat thrown suddenly into the circulation. In cases characterized by slight dyspnea and hurried pulse the diagnostic symptom will be the presence of fat in the urine. In the more severe cases it will be impossible to differentiate between thrombus and embolus of hematogenous origin and a fat embolus, excepting by this sign. In fatal cases post-mortem examination affords a positive proof.

The value of Borle's paper lies in the fact that attention is called to the very real danger incident to so-called subcutaneous operations, and one which would certainly be avoided, providing the bone were not involved, in the open operation.

Reports on Therapeutic Progress

THE TREATMENT OF APPENDICITIS.

C. A. PORTER, in a contribution to a symposium on this subject in the *Boston Medical and Surgical Journal* of March 23, 1905, draws the following conclusions:

1. Purgatives should never be given in acute appendicitis, before operation.
2. Ochsner's treatment is the best treatment to adopt from the onset of an attack of appendicitis, and to carry out when operation is refused.
3. Ochsner's treatment is the best

treatment to employ in almost all cases of appendicitis, after operation.

4. A careful examination of Ochsner's statistics shows results after delayed operation superior to those obtained by immediate operation.

5. Should his results be confirmed by a larger experience in the hands of other surgeons, the advantages of delay, with evidence of infection beyond the appendix, contrasted with immediate operation, must be granted.

6. Until the superiority of conservative treatment has been satisfactorily demonstrated, immediate operation will be urged by the majority of surgeons in most cases of acute appendicitis in all stages.

7. The harm which may result from an exaggeration of the advantages of delay, and the misapplication of Ochsner's treatment to early acute appendicitis, is obvious and important.

8. Owing to the bad results of operation in desperate cases, and the improvement which Ochsner claims may occur under his treatment, the present tendency of surgery is becoming more and more conservative; borderland cases, in which general irrigation, etc., was advised in the past, are now drained locally, or no operation is advised. In consequence operation will no longer be the scapegoat, blamed for a death in reality due to ignorance or delay.

9. Conservative treatment may be advised in certain cases of acute appendicitis, in which the symptoms of rapid septic absorption (peritoneal sepsis) are out of all proportion to the evidences of peritonitis. Such cases are usually caused by a streptococcal retroperitoneal lymphangitis or diffuse intraperitoneal infection. The results of operation are most unsatisfactory.

10. When there is evidence of recent improvement, or the condition of the patient, obesity, etc., or the surroundings are particularly unfavorable for operation.

11. Ochsner's treatment should be advised in most cases of spreading or diffuse peritonitis when a reasonably good surgeon cannot be obtained. Under such circumstances the results of his teaching have probably accomplished their greatest good.

12. Irrigation of the general peri-

toneal cavity is a major operation, not to be undertaken unless the conditions are such that it can be thoroughly performed. It is especially difficult when distention is extreme, and almost impossible unless anesthesia is profound. It is indicated in recently diffused processes, particularly if the previously unirritated peritoneal cavity has been suddenly infected through rupture of an abscess. It may be used in some cases of spreading infections without adhesions, though local operation is probably preferable. General irrigation should not be employed in cases of general peritonitis of several days' duration, with circumscribed collections of pus among the intestines.

13. After irrigation the danger of increased absorption is best prevented by a tube or cigarette drain to the bottom of the pelvis, or, in women, vaginal drainage, with exaggerated Fowler's position for twenty-four to thirty-six hours.

14. Local operation with pelvic drainage and Fowler's position, without regard to the degree of peritoneal infection, is preferred by many, if not most, surgeons to general irrigation, and on the whole is tending to supplant the latter. The rapidity with which it can be performed makes it the method of choice in very sick cases, in those with marked distention, and particularly in operations outside of hospitals. There are certain cases, however, in which it is inferior to general irrigation.

15. On an analysis of the statistics of some operators in appendix peritonitis, though the methods of operation (local or general irrigation) and the minor details of technique may vary, the results are often found to be approximately the same. The author thinks the conclusion is therefore justified that natural peritoneal resistance is a most, if not the most, important factor in overcoming infection, provided the abscess and the pelvis are drained or the appendix removed in the shortest possible time, with the least amount of trauma and without spreading infection. The question whether the operation should stop at this point or be followed by a general saline irrigation appears to be one of secondary importance; it may be that the one advantage of irrigation is neutralized by its disadvantages.

16. In the postoperative treatment of these cases too much attention has been given, the author thinks, to the condition of the bowels. When the intestinal walls are paralyzed, and distention is extreme, enterotomy or colotomy may be occasionally beneficial; enemata or the rectal tube may be of use in relieving the large intestine from gas, but as the distention is chiefly due to paralysis of the small intestines, the effect is usually slight; cathartics by mouth are always ineffectual; calomel, with obstipation, may be positively dangerous. Many patients are exhausted by repeated and vain attempts to move the bowels. Ochsner's routine with turpentine stupes to the abdomen is the best treatment for the first forty-eight hours after operation. When intestinal movements cannot be heard, cathartics very rarely induce peristalsis. When the paralysis has passed away and intestinal sounds can again be heard, then cathartics should be given and will be found efficient.

SOME COMMON ERRORS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

In the course of an article on this subject in the *Journal of the American Medical Association* of March 25, 1905, BRIDGE reminds us that we have given our patients creosote or guaiacol or some other drug thought to be inimical to the tubercle bacilli, and have neglected the half-dozen measures whose tendency it is to increase the vital powers of the patient. Thus we have thrown away the great resources of rest, fresh air, outdoor life, changes in surroundings, and a systematic effort to increase the nutritive forces of the body—and all because we had prescribed some one remedy, or alleged cure, which, through fashion or bias, had filled us with a fatuous faith.

There is no objection to the tonic medicines, from cod-liver oil to strychnine; nor to creosote and its modifications, if they do not disagree with the particular patient; nor to soothing inhalants that are harmless; nor to Koch's lymph in minute doses in the incipient cases; nor even to the very cautious use of the so-called tubercle antitoxins—always provided they are understood to be minor and subsidiary things, never of great

value, and to be used only as aids to the general hygienic measures referred to, never to their hindrance.

To give creosote to the extent of lowering the digestive power, or to give serum injections that cause phlegmons and higher temperature, or to give coal-tar drugs for fever, while the patient is allowed to go in an unhygienic course of life without advice or correction, is an error so awful in its results that not even confession and penance are a sufficient atonement. We have all of us sinned in some of these directions, and some of us grievously.

Every one of these patients should be constantly supplied with outdoor atmosphere in such abundance that every successive inspiration brings a fresh dose of air to the lungs, and none from previous expiration. Every one should have long hours of rest—if feverish, the rest recumbent should be almost or quite constant, for exercise increases the fever. The digestive powers should be made to do their best, under the most careful supervision, toward improving the nutrition and possibly also the resisting power of the patient.

But we have allowed our patients to stay indoors, without proper ventilation, and breathe a poisoned house air three-quarters of the time. We have subscribed to the popular untruth—as pitiful as it is groundless—that patients in a gentle current of air called a draught are in danger of colds and other harm, and so we have kept them breathing over and over their contaminated air. The truth is that one never takes cold in any draught, even a wind, if his body and head are kept warm by clothing. The advice of the profession ought to be to keep in a draught, never out of it; only it would lessen the business of the physicians, while it would be of incalculable benefit to the people.

We have given to some of the patients the terse advice to “eat all you can, and drink whiskey,” with the result that not a few of them have lessened their nutrition by eating a large meal once in a day or two and taking only trifles (often harmful) between times; and have distinctly lessened their powers by too much whiskey, taken as the whim moved them.

We have believed the patients who say that they cannot eat because they have no appetite, forgetting that a patient can

usually be led to take the right food as well as to take medicine. We have agreed with the patient's theory that an appetite is necessary, and that food must be adjusted to the appetite; whereas the truth is that in tuberculosis the food ought to be adjusted to the patient, and the appetite to be ignored almost completely. Sickness makes it morbid and a poor guide. Many a cadaveric, unhungry patient can be taught to eat six small doses of food daily and get fat—and even then to acquire an appetite.

We have acquiesced in the notions of patients that the more muscular development they can induce the better; so some of them have become athletes, with less gain in the limiting fibrosis in their lungs than if they had kept their exercise below rather than above normal. For it is a rule, which probably has no exception, that tuberculous tissues should be kept still. There is no good reason to say that lung tissue is an exception to the rule. What we need is a simple, safe, and efficient means of putting the sick lung to complete rest in all unilateral cases. All the deep breathing devices are mischievous, and the breathing tubes that stretch the lung tissue are especially so.

In pulmonary hemorrhages we have given large doses of ergot, which has, if it has done anything, increased the blood pressure and so made a fragile vessel more likely to break and bleed. This is the only result that, from its physiological effects, we had any right to expect from this drug. Such treatment not only makes the bleeding worse, but is like to the tragedy of being slaughtered in the house of one's friends.

And when a patient has bled nearly or quite to syncope, and his pulse has become so fine and weak as to be barely perceptible, we have, fearing he would die otherwise, filled him with normal salt solution that has again distended his vessels and pushed out the clot that had begun to form at the bleeding points, and so helped to destroy the little life that was left. It would profit us to reflect that the condition most conducive to a firm clot in a large vessel opening is such a degree of exsanguination as to reduce almost to zero the blood-pressure at the seat of disease. That patient is most likely to survive a large lung hemorrhage whose blood-pressure is for some hours there-

after reduced to the lowest point consistent with life. And transfusions, infusions, and injections of normal salt solution are in order when we know the bleeding vessels are firmly closed by clots, and when we have reason to think there are no other brittle vessels ready to break. What is more often needed is means to dilate the blood-vessels of the periphery and so lessen the pressure in the deeper parts: such measures as fasting, free catharsis, opiates, and compression bands about the limbs at their junction with the body.

We have been guilty of great carelessness with many of our patients, and have tolerated their doing a lot of foolish things that have much retarded their recovery. And these are mostly preventable things. One error is to let them eat what they happen to like, and as and when they like it, regardless of consequences. These patients are prone to whims of eating, and occasionally get a fit of indigestion that sets them back for weeks. They are even more erratic in their exercise. Many a one has lost all he had gained in months by a single day of overdoing. The patient is governed by his momentary sensations, and rarely can be trusted to live continuously in that strict moderation which is necessary to keep up a sustained increase in resisting power. A consumptive cannot afford to dissipate in anything for a single day, for when his vitality drops even a little his disease becomes worse.

THE BEST METHOD OF ADMINISTERING POTASSIUM IODIDE.

Under this practical title HUHNER writes in the *New York Medical Record* of April 1, 1905. He begins by reminding us that for therapeutic purposes potassium iodide should always be given in solution, well diluted, and if possible never on an empty stomach.

For dilution, several things have been used. Milk is by far the best, for it not only disguises the taste more effectually, but also prevents, to a great degree, the disagreeable after-effects of the drug. Another excellent vehicle is compound syrup of sarsaparilla. Mineral waters or ordinary pure water may also be used. The iodide of potassium should be diluted with about half a glass of the water or milk.

It is essential to have a perfectly pure preparation. Pure iodide of potassium can be taken for a very long time and even in large doses without causing disturbances of the gastrointestinal canal. Many of the bad effects of this drug are due to an impure preparation.

It is necessary to observe strict cleanliness of the skin (daily baths) while taking iodide of potassium internally. By so doing the disagreeable skin eruption may to a large degree be prevented, the eruption being due to the decomposition of the iodine salt excreted with the perspiration by the fatty acids, setting free the iodine, which acts as an irritant.

As a practical matter it is preferable not to write for a 100-per-cent solution. Several years ago the author wrote a prescription for potassium iodide to be given in drop doses, gtt. j to represent gr. j of the drug, and was surprised to be informed by the druggist that it was impossible to make up a 100-per-cent solution. On consulting the late Dr. Charles Rice (head of the general drug department of Bellevue Hospital) he showed the author that it was possible to make up such a solution, though with some difficulty. It became evident that most druggists would not take the necessary time and trouble, but would probably give a weaker solution. Where, therefore, accurate dosage is of importance, it is safer to prescribe a 50-per-cent solution, two drops to equal one grain of the drug.

Iodide of potassium is incompatible with alkaloids and the ordinary soluble metallic salts.

While the patient is taking potassium iodide, calomel should not be dusted into the eye, for an effect may result similar to the application of a strong caustic on the mucous membrane. This point is fully discussed in all standard works.

Small doses of the drug may produce symptoms of iodism, while larger doses, in the same patient, may not have this effect.

Potassium iodide should never be given in phthisis or when there is even a suspicion or tendency to phthisis. Its irritating effect upon the bronchial mucous membrane is a decided objection to its use in such cases. If, however, phthisis is associated with syphilis, it may be used to advantage.

Taking up next the more important conditions for which potassium iodide has been prescribed, the author endeavors to indicate the best method of administering it in each condition.

Syphilis.—It was impossible in this space to give anything like a complete discussion of the treatment of this disease. A bare outline only of the part played by iodide of potassium therein is presented. Practically it ought never to be given in the primary stage. In the secondary stage it should not be administered until the patient has had at least six months of treatment with mercury, preferably by inunctions. There is an exception, however, where some tertiary symptoms appear ahead of time (during the secondary stage) and threaten the integrity of some important organ, the brain, eye, etc. In such cases it is absolutely necessary to start with the drug at once, and run it up as rapidly as possible in a manner hereafter described. In the simple secondary lesions it is useless, but may prove beneficial in recurrence of secondary lesions. In an ideal case, after six months' treatment with mercurial inunctions, the writer starts the use of iodide of potassium with the well-known mixed treatment, using the formula:

℞ Hydrargyri iodidi rubri, gr. ss;
Potassii iodidi, gr. cxxvij;
Syr. sarsaparillæ co., f3j;
Aquæ, q. s. ad f3ij.

M. Sig.: 1 drachm t. i. d. after meals, well diluted.

After a few weeks, however, the author prefers to give the drug alone, and in solution, in doses of ten to twenty-five grains t. i. d., giving mercury by inunction off and on for another six months at the same time. Throughout the treatment especial attention is, of course, given to the care of the mouth, teeth, gastrointestinal canal, and skin.

When giving the drug in this way, and intending to keep up the same dose for a long time, it is the author's preference not to order it in drop doses, but in solution, as follows:

℞ Potassii iodidi, 3vij to 3x;
Syr. sarsaparillæ co., f3j;
Aquæ, q. s. ad f3ij.

M. Sig.: 1 drachm in half a glass of milk or water t. i. d. after meals.

Again, when giving potassium iodide in this manner for its specific effect, and not to counteract any particular symptom,

the writer stops at the first symptom of poisoning, waits a little while, and then changes the dose.

Very different, however, is the method of administering in tertiary syphilis, especially when some vital organ is threatened. Here he does not stop simply because some pustulation or rhinitis occurs, but continues right on in increasing doses till more serious symptoms make it impracticable. This is done for two reasons: first, by increasing the dose we may sometimes cause the symptoms of poisoning to disappear, while a larger one may not; and secondly, even if the symptoms do not disappear, or even get worse, it is far more important to saturate the system as rapidly as possible with the drug than to worry over a pustulation or rhinitis. In other words, we must endeavor to put as much iodide of potassium into the system as it can possibly stand, and also do it as rapidly as possible. The method carried out by the author consists in prescribing a 50-per-cent solution (gtt. ij = gr. j), and starting off with gtt. xx, increase gtt. ij at each dose as follows: First day 20 drops in the morning, 22 drops at noon, 24 drops at night; second day, 26 drops in the morning, 28 drops at noon, 30 drops at night; third day, 32 drops in the morning, and so on. Given in this way ill effects rarely occur, and the writer has rarely had cause to stop it on account of unpleasant symptoms. At the same time the increase is rapid enough for ordinary purposes, although under extraordinary circumstances we may increase by four drops instead of two at each dose. The author has two patients at present taking between 500 and 600 grains daily, without any annoying symptoms.

TREATMENT OF CEREBROSPINAL FEVER.

In an article upon this subject in *American Medicine* of April 1, 1905, STOCKTON gives the following advice as to treatment. He points out that when we recollect the difference in virulence in different epidemics, it is easy to understand how faulty notions as to the effects of measures of treatment may gain credence. Nevertheless, a timely review of the subject would seem to warrant the conclusion that benefit does follow cer-

tain of these measures, and from his own point of view the writer concludes that the most useful procedure is the bringing about of the best hygienic condition for the patient—that is to say: (1) Absolute quiet in well-ventilated, darkened rooms, with the absence of all excitement and irritation. (2) Giving the greatest attention to secure the proper performance of the various functions of the body. (3) The trial of the hot baths after the method of Aufrecht in all cases in which they seem to do good. (4) The practice of intraspinal puncture, with drainage when necessary to relieve severe pressure symptoms, to be repeated, if necessary, provided benefit follows the first puncture. (5) The use of antipyrin in cases in which the temperature is raised, not only for the relief of this symptom, but for the mitigation of headache and hyperesthesia. Personal experience has shown the author that the drug is also useful in improving the mental state, and it has not been followed, in his hands, by the expected depression. (6) The use of opium or the bromides, alone, or in connection with antipyrin, if necessary, for the relief of convulsions, pain, hyperesthesia, and pressure symptoms generally, which are not relieved by the foregoing methods of treatment. (7) The use of mercury when needed for its laxative effect, or needed to assist in stimulating the organs of elimination.

SCOPOLAMINE AS A GENERAL ANESTHETIC.

TERRIER (*Bull. et Mem. de la Soc. de Paris*, No. 6, 1905) in a report on the use of scopolamine as a general anesthetic in surgical practice publishes the results of twenty-six trials of this agent. Scopolamine, the anesthetic properties of which were brought under the notice of French surgeons by Desjardine at the end of last year, is extracted from the *Scopolia japonica*, and is chemically identical with hyoscyne, although possessing different physiological action. The anesthetic effects were studied by injecting subcutaneously a solution of a milligramme of scopolamine with a centigramme of morphine in a cubic centimeter of distilled water. An injection of this solution made four hours before the time of the surgical operation is followed

by a second injection after an interval of two hours, and by a third after a further interval of one hour. After the first injection the patient, in the course of half an hour, gradually falls into a deep but quite natural sleep, the respirations being quiet and the reflex movements readily excitable by external influences. After the second injection the reflexes are diminished, the respirations become less frequent, and the pulse is accelerated. The patient is now in a heavy sleep, from which he can be aroused for a moment by shaking. The third puncture, which is not felt by the patient, is followed by a still deeper but quite physiological sleep, by dilatation of the minute blood-vessels of the face, indicated by congestion, the pulse being full, regular, and rapid. The pupils are dilated and the eyeballs rotated upward and a little outward. Notwithstanding this state of intense stupor there is no complete relaxation of the limbs, and it is necessary during the removal of the patient to the table, and also during the operation, to avoid any disturbance from noise or talking, and to protect the eyes from light. There is, however, marked and persistent anesthesia over the whole of the surface of the body, and the cutaneous sensibility to pinching and pricking is completely abolished. The patient continues to sleep deeply and quietly for four or five hours after the operation, and after a slow awakening is restored to a natural condition. Anesthesia persists for some time after the renewal of the cerebral functions, so that the patient remains comfortable and free from pain in the wound for the first twenty-four hours after the operation. There is freedom also from headache and from nausea and vomiting.

The author points out that this method of producing general anesthesia has the following advantages: (1) It suppresses any apprehension of the operation. (2) The state of anesthesia is not preceded by excitement, and thus a cause of syncope is avoided. (3) The nausea, vomiting, and malaise which so often follow other methods of producing anesthesia are not observed after the use of scopolamine. The patient awakes in a normal manner from his deep sleep, and then does not feel the slightest malaise, and is able at once to take fluid and even solid nourishment. (4) The persistence

of anesthesia after the awakening of the patient enables him to pass the night in comfort and in freedom from pain at the seat of operation. (5) The injection of scopolamine is not followed by albuminuria. (6) This agent does not act on the heart or lungs, and causes no bronchial irritation.

On the other hand, there are certain disadvantages attending this new method. Scopolamine is very uncertain in its action, and it is sometimes necessary to have recourse to the inhalation of chloroform or ether. It is, moreover, a very unstable substance, so that it is necessary to use only such as is quite fresh and pure. A serious inconvenience is the vasodilatation it causes, which in operations on very vascular tissues necessitates careful precautions for arresting hemorrhage, and prolongs the operation. Another disadvantage attending the anesthetic action of scopolamine is the persistence during such action of contraction of the abdominal wall. This complication, which tends to contraindicate the use of scopolamine as an anesthetic in abdominal surgery, might, the author thinks, be prevented by making only one subcutaneous injection of the solution.

In conclusion, the author holds that scopolamine possesses the great advantage over all other general anesthetic agents of being free from danger.—*British Medical Journal*, March 25, 1905.

PROGNOSIS OF GASTRIC ULCER UNDER MEDICAL TREATMENT.

BEVERLY ROBINSON is said in the *Medical Record* of April 1, 1905, to hold the following views: His contribution is based upon his personal experience in the treatment of ulcer of the stomach. Theoretically, the treatment of this condition belongs to the physician. There are few diseases to-day that have a more direct and positive interest to him than simple or round ulcer of the stomach, and he believes the condition could be cured by skilful intervention. If an ulcer should develop with pain and dyspeptic symptoms he believes a cure would follow from a purely medical course of treatment. But if the symptoms persist then surgical aid should be invited, which in some instances will save the patient's life.

In cases of perforation of the stomach from any form of ulcer the indication is for operation, and the sooner the better. Instances of cure without surgical intervention are known, but are very infrequent. Of 29 cases at St. Luke's Hospital, 24 occurred in females; of these 24, one patient died, 19 were cured, and the rest lost sight of. Only one of the 29 cases was treated surgically.

Dr. Robinson says he had written to the representatives of many institutions to learn how many cases of ulcer of the stomach they had had, how many were operated upon, the nature of the operation, and the results obtained, as well as the results of stomach examinations before and after operation. The various reports received, he says, would take too long to present, and he does not believe are interesting enough to justify him in taking the time. In one institution there were 35 cases of gastric ulcer; 18 were operated upon, and 17 were under medical treatment. Ten deaths occurred among those operated upon, while none occurred among those treated medically. Most of the operations were emergency cases, and there were three gastroenterostomies. Dr. Erdmann had reported to him three cases; all recovered after operative interference. Dr. Adler had reported to him 43 cases occurring from 1900 to 1905, 39 medical and 4 surgical; 26 of the medical cases resulted in cure, practically without treatment; 10 were improved, and 10 unimproved. Some of the patients were victims of Bright's disease. One-third of them received nutritive enemata. In some of the operative cases the McGraw ligature was used with success. Dr. Lambert reported to him that from January, 1900, to January, 1905, there were 34 medical and 12 surgical cases. Dr. George P. Biggs reported a total of 78 cases, with 22 operated upon. Among the operative cases there were 10 deaths. At the New York Hospital during the past ten years there were 52 cases of gastric ulcer, 35 being treated medically and 17 surgically. Of the 52 cases 11 died.

Dr. Robinson states that statistics do not throw much light upon the subject of ulcer of the stomach except to point out the fact that surgical procedures offer, in some cases, the only road to recovery. He says that Dr. Blake re-

ported 6 cases of perforation of the stomach in case of ulcer, with 3 recoveries and 3 deaths. Five cases were operated upon for gastric hemorrhage, with 2 deaths and 3 recoveries. He believes the treatment of acute gastric ulcer is essentially medical, and that hyperchlorhydria is the result and not the cause of ulcer. Robson, in 1901, had reported a 5-per-cent mortality in operations for gastric ulcer, and Moyhihan had reported a mortality in gastroenterostomy as low as 2 per cent, and he thinks these figures compare favorably with the mortality under medical treatment. The Johns Hopkins Hospital Reports give figures greatly in advance of those quoted. Mortality figures from different institutions vary greatly. The results obtained from treatment of hospital cases afford no index of what would be expected in private practice, because these patients are badly cared for before entering the hospital, and operative interference is more often indicated. On the other hand, in private practice, the patients receive the best advice from the onset of the trouble, and are at once placed under proper diet and proper medication, and as a result sooner or later they get well without the necessity for operation.

In many cases in hospital work operative interference is delayed too long. The principles of medical treatment consist chiefly in rest, bodily and mental, the use of rectal feeding with a gradual return to feeding by mouth. Special treatment for the accompanying anemia should not be ignored. Treatment of acute and chronic ulcer of the stomach differs; the acute cases can be cured by proper diet, rest in bed, with but few medicinal agents, but this treatment will not apply to the chronic cases.

With regard to perforation and hemorrhage, he says the latter might be very profuse and alarming. He has but little if any faith in gelatin. Adrenalin, 10 to 20 drops of a 1-to-1000 solution, is of value. If the hemorrhage is not readily controlled, operation should at once be resorted to. Examination of the gastric contents before and after operation is not made in this country except in a very few instances. Only two instances are on record at the Johns Hopkins Hospital. In both the total acidity was reduced. Dr.

Robinson believes that if these patients receive careful and judicious treatment they will rarely reach the stage where operation is indicated. Even in cases of profuse initial hemorrhage the hemorrhage might not occur again, and even if it did it would in all probability be less profuse. If two or more ulcers are found in the stomach it would be a dangerous procedure to excise them all. In some cases of sudden danger from repeated hemorrhages he is of the opinion that life might be saved if artificial serum was injected either subcutaneously or intravenously prior to operation; this places them in better shape to submit to operation with the hope of successful results.

In conclusion Dr. Robinson presents certain facts: that probably there is no known treatment that will prevent the formation of fresh gastric ulcers; that uncertainty in diagnosis often leads to clinical mistakes; that acute gastric ulcers must be recognized early clinically; that the treatment is purely medical; that in a certain proportion of cases this fails and chronic ulcers become established; that despite the brilliant results obtained from gastroenterostomies in gastric ulcer there are many objections to its performance; that in most cases he believes a conservative clinical diagnosis would enable us to form a judgment as to whether the treatment should be medical or surgical; that in emergency cases there frequently are no previous symptoms which permit a probable diagnosis even, hence no rational preventive treatment in these cases could be carried out. Dr. Erdman had reported eleven emergency cases in which there practically were no previous symptoms prior to perforation or severe hemorrhage for which he was called upon to operate.

THE ACETOZONE TREATMENT OF TYPHOID FEVER.

The *Australasian Medical Gazette* of February 20, 1905, contains an article on this subject by LLEWELLYN. His method of treatment was as follows: Thirty grains of acetozone dissolved in three or four pints of water—according to the age and condition of the patient—were given every twenty-four hours in doses varying from a wineglassful to half a tumbler-

ful. Lemon juice was added to each dose before administration. In all cases except one a steady fall of temperature had set in by the fourth day, and in two it began about the twelfth hour; usually it came in thirty-six to forty-eight hours. The decline in a few instances was an uninterrupted one of about 1° daily till the normal was reached, when there was no further rise, convalescence being established. But generally after a steady fall of 2° to 3° came a period of morning remissions lasting from one to four days, followed by a period of intermission lasting from four to eight days. All patients but one were convalescent on or before the fourteenth day. In the exception the temperature remained at 103° to 104° for seven days, and convalescence was not established till the twenty-first day. During this time the patient felt almost well, being free from headache, diarrhea, tympanites, or any other distressing symptom, the only indication of the severity of the attack being the temperature. Possibly in this patient the intestinal lesions were of minor severity, the attack being rather of a septicemic type. The fact that the tongue was abnormally clean and beefy throughout may perhaps lend some support to this idea. The diagnosis in this case was beyond question. The stools were absolutely typical, rose spots were numerous, the spleen enlarged, and the right iliac region tender.

That there is a direct causal relationship between the treatment and the fall of temperature was supported by the author's experience in the case of a boy aged ten years. His temperature at the inception of treatment was 103.5° . In two days a fall set in, and in a week the period of intermission began. Two or three days later the supply of acetozone ran out, and salol, hydrochloric acid, and cinchona was given. In twenty-four hours the temperature had risen to 103° , and remained there without remission for two days. The author was then able to reestablish the acetozone treatment. In eighteen hours the fever began to subside, and the normal was reached on the fifth morning.

An improvement in the general condition of the patients was always noticeable in less than twenty-four hours—sometimes as early as eight hours—and

before there was any sign of the fall of temperature. (This was inferred by the author to be due simply to dilution of the toxins in the body by the large quantities of water ingested, as intestinal antiseptics could hardly be responsible for a general bodily effect manifested in so short a time.)

One of the most remarkable features of the series was the almost complete absence of distress after the first day or two. Several cases in the remittent stage, with high evening temperature, craved for food like convalescents, or wished to get up.

Always within three or four days the fetor almost entirely disappeared from the stools, and in no case did severe diarrhea supervene after the inception of the treatment—two features highly appreciated by the nurses, whose work is thereby diminished by half. Sometimes acetozone seemed to cause a slight tendency to constipation, but this was easily corrected by 15 to 20 grains of phosphate of sodium thrice daily.

Marked diuresis was generally noticeable in a few hours. Tympanites was quickly relieved, and unless present when treatment was begun, none appeared throughout the illness. No hemorrhage from the bowel occurred in any of the cases. In no instance did the tongue crack; on the contrary, it generally remained moist and unusually free from coating.

One difficulty met with at first was due to the great bulk of the solution. Most of the patients found it impossible to take large quantities of liquid nourishment in addition. Dissolving the 30 grains of acetozone in less than three pints of water caused irritation of the stomach, and patients who took less than 30 grains in twenty-four hours did not progress well. The difficulty was, however, overcome by giving a maximum of two pints of milk—sometimes peptonized—every twenty-four hours, and supplementing it with a tablespoonful of strong raw beef juice every two hours. On this diet some of the patients actually gained weight and strength as the illness progressed. The patient who was in low delirium was given peptonized enemata and brandy per rectum, and only acetozone by the mouth for some days. He was conscious in five days, and convalescent in fourteen days.

In a few cases the drug appeared to excite vomiting at first. This was overcome either on the administration being persisted in, or did not return after stoppage by a single dose of one-eighth of a grain of morphine injected under the skin of the epigastrium.

Apparently the acetozone should be continued during the first three or four days of convalescence. In the only two instances of this series in which relapses occurred the drug had been discontinued on the first day. The relapses were, however, quite trivial.

From observations of these cases the author was led to believe that in acetozone we have an agent which in typhoid fever patients brought in before muttering delirium supervenes, and in the absence of early dangerous complications, may be depended upon to reduce the death-rate almost to *nil*.

THE REPUTED VALUE OF ERGOT IN MIDWIFERY.

HOOPER in the *Australasian Medical Gazette* of February 20, 1905, writes entertainingly upon this topic. He believes that it has been proved that postpartum hemorrhage, unless due to trauma or some blood dyscrasia, can best be met by methods which have superseded the use of ergot. The employment of the drug in midwifery work is therefore declining year by year.

In secondary hemorrhage, due to separation of thrombi in the uterine vessels, not associated with deciduoma malignum, the author believes that the free administration of ergot and strychnine, both given hypodermically, would be necessary in treatment. For posthemorrhagic shock ergot must not be used, reliance being placed on increasing the fluid in the blood-vessels by transfusion of normal sterilized salt solutions, and stimulating the heart by strychnine and alcohol.

In uterine inertia, during the second stage of labor, it is wise not to give ergot, but to secure a sound sleep for the patient; to empty the bladder and rectum, and apply forceps early, so as to lessen the risks of hemorrhage in the third stage, and later.

The preparations of ergot which have given most satisfaction in the hands of

the author are: (1) A dose of one-thirtieth grain of citrate of ergotine, administered in similar manner; or Parke, Davis & Co.'s ergot aseptic, or their standard solution of ergot given by the mouth. Or (2) Tanret's ergotinine, in sealed bottles, dose 5 to 10 minims, given by injection into the muscle; its active principle is said to be cornutine, and it is seldom followed by suppuration at the site of puncture.

It is obviously futile to administer any preparation of ergot until the source of the hemorrhage is accurately ascertained; and on four occasions the author has found that the torn vessels in the cervix, the clitoris, the vagina, and the perineum were the causes of the trouble. Instead of the drug diminishing the force and severity of the after-pains, patients are positive of the contrary effect.

It must always be remembered that it would be unwise to give ergot to a patient who had renal inadequacy, or a diminished output of urea or albuminuria. The author asserts he would not give up the use of ergot, though the occasions when he would be likely to require it should be very few. But by greater care during the puerperium, and especially by not allowing the second stage to be unduly prolonged, there need be little reason to fear hemorrhage during the third stage, or later; and if it did occur, and the uterus contained no retained portions of placenta or membranes, hot water irrigation of the uterus should be used, supplemented by firm control of the fundus uteri through the abdominal wall, and then might be given an injection of ergot into the gluteus muscle.

THE STATUS OF SUPRARENAL THERAPY.

In the *Medical News* of April 1, 1905, FLOERSHEIM discusses this subject at length.

We have the dried and powdered suprarenal substance, which is designated as suprarenal extract. We also have the alkaloid, better termed the active principle, which is called adrenalin. Solutions of the suprarenal extract do not keep, but solutions of adrenalin chloride keep indefinitely, are reliable, and are non-irritating. Whenever the author speaks of

only suprarenal, as such, he also means adrenalin chloride.

The powder is administered internally in three-grain doses either as a powder or better in capsule form. The active principle is administered internally in the form of a solution, the strength of which is 1/10,000 to 1/1000, in doses of from five to fifteen drops. To get the best results it should be administered frequently—from one to three hours or oftener, as the case may require. The solution is dropped on or beneath the tongue for very rapid effects, or it can be swallowed. Some now advocate to use it hypodermically and by electrolysis. As to the hypodermic use of the drug it is unnecessary, according to the writer, and he has never been in favor of its use. If an adrenalin preparation is at hand, a few drops can be rapidly placed on or under the tongue, and its action will become apparent in about the time it takes to get a hypodermic syringe ready for action. An effect was produced within twenty seconds when adrenalin chloride was dropped under the tongue. When in a great hurry the syringe often fails to work properly, and much valuable time is lost. One reads in literature that the hypodermic administration of the solution (otherwise called the subcutaneous injection) had been given in collapse, and the site of the injection was often very painful, and that this form of administration was dangerous. Solutions in the strength of 1/10,000 have been known to cause great irritation, while stronger solutions have given rise to gangrene and subsequent sloughing. Some state that they have used it hypodermically without any deleterious results. Those who have not advised subcutaneous administration advise intravenous injection, but they also state that when adrenalin solution is given by the mouth very rapid and beneficial effects are obtained, with no danger whatever to keep the physician on his guard when he so administers it. Why, then, if we get very rapid results (often within twenty seconds), when it is given by the mouth without the least danger to cause us any anxiety, should one use the hypodermic or intravenous method, with such dangers as are above portrayed?

Surgically, it is applied locally to the mucous membrane of the eye, nose,

throat, urethra, bladder, etc., in a strength of 1/5000 to 1/30,000, with or without the addition of other remedies, as the case may indicate. Some drugs destroy the active properties of the active principle in solution. Those most often employed, and which do not materially affect its valuable and powerful properties, are cocaine, boric acid, and normal salt solution. Cyanide and bichloride of mercury, zinc sulphate, pilocarpine hydrochlorate, and many others have been used in the same solution, but it is better to restrict, up to the present time, the addition to the three previously mentioned. As to contraindications, it has none.

The diseases in which the suprarenal was administered by the writer and the results published were in all forms of organic heart disease, tracheitis, acute and chronic bronchitis, bronchial asthma, congestion and edema of the lungs, pneumonia, hemoptysis, pulmonary tuberculosis, hemorrhage from the uterus from various causes, such as complete and incomplete abortions, benign and malignant tumors, postpartum hemorrhage, metrorrhagia, atonic conditions, and at the menopause. The writer has also employed it in hematemesis, hematuria, in a threatened attack of apoplexy, and in apoplectic seizures. The suprarenal, and more lately the adrenalin chloride solution, have been used by many observers both medicinally and surgically in diseases of the eye, ear, nose, throat, larynx; in genito-urinary work, including the kidneys; in scarlatinal angina, asphyxia neonatorum, anesthetic collapse, angioneurotic edema, edema of the glottis, hemorrhoids, hemorrhagic fecal fistula, gastrointestinal hemorrhage, goitre, gonorrhea, lupus, morphine and carbolic acid poisoning, ulcer of the stomach, for lost voice, and for diagnostic purposes. To simmer it down, the suprarenal extract and its principle are of value in organic heart disease, for performing bloodless operations, in most of the diseases ending in "itis," as an astringent and as a hemostatic in hemorrhages generally.

The suprarenal is one of the most valuable of remedies in organic heart disease. When other drugs, including strychnine and digitalis, have failed to be of any benefit, the solution of adrenalin chloride has given marked beneficial results. A detailed account of its action

can be found in one of the author's published papers. Adrenalin chloride has been used in pneumonia as a heart stimulant to tide the patient over a critical period.

THE TREATMENT OF INOPERABLE CANCER.

Editorially, the *Australasian Medical Gazette* of February 20, 1905, speaks on this topic as follows:

In a small pamphlet recently published, Dr. Shaw-MacKenzie discusses two methods of hypodermic medication in the treatment of inoperable cancer. He refers to the treatment advocated fifteen years ago by the late Professor Clay, of Birmingham, of administering Chian turpentine by the mouth in cases of cancerous disease. It is well known that Professor Clay obtained some remarkable results by this method of treatment, but other investigators failed to secure similar results, and it rapidly fell into abeyance. Dr. Shaw-MacKenzie has revived this treatment, but now uses the drug by deep injections into the subcutaneous tissues. He uses an "all-glass" syringe with an irido-platinum needle, and begins with a dose of 5 minims of a 20-per-cent combination of Chian turpentine with olive oil, increasing by 5 minims on alternate days up to 60 minims. He records two cases of treatment by this method in which, although a cure was not effected, there was great relief of pain and fetor, with considerable shrinking in the growth. In conclusion, he does not claim the hypodermic injection of Chian turpentine as a method of cure of inoperable cancer, but he does claim that, so far as his experience goes, there is an apparent arrest of growth and the removal of some of the worst features of the disease, namely, pain and fetor. He does not consider it possible to assert what is the precise action of this drug upon cancer, but he maintains that the direct removal of associated inflammation and the production of a marked leucocytosis as the result of the treatment by Chian turpentine are noteworthy. He admits that an extended trial is necessary in order to arrive at a definite conclusion as to the value of these methods of treatment, but he is, nevertheless, personally satisfied that the results justify a trial in all cases of cancerous disease.

In view of the fact that we are still in ignorance of the true pathology of cancer we cannot condemn any system of medication for this disease as futile until it has been proved to be so as the result of extensive investigation. When we are brought face to face with a case of inoperable cancer, whether primary or recurrent, after operation, it is surely justifiable to use any system of treatment which has been successful in the hands of some observers in relieving pain and other serious discomforts, even though it does not effect a cure.

THE NATURE AND TREATMENT OF EPILEPSY.

In the course of an article bearing this title in the *Lancet* of March 18, 1905, TURNER says that at the outset it may be stated there is no single specific remedy in the treatment of epileptic fits, although the bromides come nearest to this definition. The influence of the bromide salts upon epileptic fits is variable. In the first place, bromide medication may arrest the seizures immediately or within a brief period of their administration. Under this heading are found the curable types of epilepsy, cases characterized by absence of mental impairment and with fits recurring at long intervals—in fact, a mild type of the disease. If any given case is capable of arrest by treatment, a satisfactory response will be apparent within a short period of the commencement of bromide treatment. Of 86 cases in which the fits were arrested for periods varying from two and a half to twenty-five years, rather more than 50 per cent yielded to treatment within the first twelve months of regular bromide medication. Secondly, the bromides may induce a marked lessening in severity and frequency of seizures without their complete arrest. This is the common result of bromide treatment, and is what may confidently be expected in the majority of cases in the early stages of the disease. Thirdly, the bromides may change the time incidence of the seizures, converting nocturnal into diurnal attacks, or *vice versa*. Fourthly, the bromides may exert no influence at all, or may even make the attacks worse.

Bromide treatment should be commenced at the earliest possible time after

the onset of the fits, as there is a greater prospect of arrest or improvement during the first five than during the second five years of the disease, although arrest of fits may occur after a duration of from twenty to thirty years. The administration of the bromides should be continued for a period the duration of which is to be determined by a study of each case separately, but should not be less than two years. The dose usually given is thought by the author to be too large. If benefit does not follow a daily dose of from 45 to 60 grains of one, or a combination, of the bromide salts, some other remedy or method of treatment should be sought. The large doses prescribed on the continent, from 75 to 150 grains daily, although no doubt suppressing the seizures for a time, induce other and more serious phenomena. It has been shown that daily doses of from 150 to 200 grains of bromide salt produced slurring articulation, lassitude, and mental dulness, with abolition of the palatal and pharyngeal reflexes. Moreover, the bromides have an accumulative action. Laudenheimer has proved that an epileptic taking ten grammes of bromide salt daily for eight days only excreted 35 grammes during that period. The blunting influence of the bromides upon the cortical motor cells has also been demonstrated by the fact that a considerably stronger electrical current is required to excite the cortical motor areas of dogs which have been dosed by bromide of potassium.

In confirmed epilepsy with mental deterioration all that can be expected from the continuous use of the bromides is diminution in the number and perhaps in the severity of the seizures. The daily 30-grain dose of bromide of potassium was stopped entirely for a month in each epileptic in a house at the colony for epileptics containing twenty-four patients, with the result that the total number of fits during the month rose from 278 to 402. The mental condition showed no material change.

Of the influence of the bromides upon the several types of epileptic fit, it may be said that the grand mal seizure is that most amenable to their influence, the petit mal attacks and psychical equivalents being little influenced. In serial epilepsy and the status epilepticus, chloral

in combination with the bromides forms the most effective remedy, while in the post-paroxysmal psychoses the bromides are of little service.

Various modifications of the bromides have been introduced in recent years. Bromopin being difficult to dispense and costly has not in the writer's hands met with much success; bromocarpin has been especially advocated in the forms of seizure arising from intestinal autointoxication. Borax has been strongly recommended by some authorities. A combination of borax and digitalis has been found serviceable in some cases of minor epilepsy. Belladonna is a remedy which should be tried in all cases in which the bromides have failed. Every now and again a case will be met with in which this drug produces remarkable and persistent arrest of seizures.

A modification of the bromide treatment is to be found in the opium-bromide therapy recommended by Flechsig about twelve years ago. The principle of the treatment lies in the preparation of the nervous system for subsequent bromide medication by a preliminary administration of opium. One of the preparations of opium, preferably the extract, is given for a period of six weeks in increasing doses up to 15 grains per diem, when it is suddenly stopped, and large doses of bromide salt, from 90 to 120 grains, are substituted, this large dose being gradually diminished until about 30 grains are taken daily. The most favorable cases for its administration are young epileptics before or about puberty, and epilepsy in the early stages. Confirmed epileptics and those with pronounced psychical degeneration are not materially benefited. Some authors speak very highly of the method, more especially Binswanger and his pupils, while others have not found its advantages outweigh its dangers. The writer's experience of the method has been limited and not satisfactory.

Various forms of organotherapy have been suggested and tried in epilepsy. Of these thyroid administration was at one time strongly advocated, more with a view to counteract mental deterioration than as a subduer of convulsions. In a number of cases of confirmed epilepsy in which preparations of the thyroid gland were given over considerable peri-

ods, no appreciable result was detected either in the mental condition or in the frequency or severity of the fits. The administration of cerebrin also did not lead to any results which warranted its further or more protracted use. The observation that a large and persistent thymus gland is found in cases of epilepsy in young persons has led to the view that the secretion of this gland may have some influence in the production of epileptic seizures, a view which appears to have some corroboration in the fact that the administration of preparations of this gland has materially aggravated the condition.

"Salt Starvation."—Of the several forms of diet recommended in epilepsy the author has found that of salt starvation or "dechloridation" the most satisfactory. The suggestion of substituting the salts of chlorine by the bromide preparations is due to Toulouse and Richet, who recommended a diet in which the total quantity of sodium chloride per diem was limited to one or two grammes. It was thought that by diminishing the chlorides in the food the bromides might be given in smaller doses, and various writers have found the method useful. The dietary which has been found most serviceable consists of milk, fresh butter, eggs, fruit, vegetables, and bread, all salt being as far as possible eliminated. The general results which were observed from the administration of the saltless diet in a number of cases of confirmed epilepsy were briefly as follows: There are some cases in which the number of attacks is diminished during the continuance of the treatment, and others in which the improvement has lasted after the diet has been stopped. These are the cases in which the bromides are not well borne or are even deleterious. The mental condition also has shown some improvement. The chief disadvantage of the diet is its monotonous character, but as a relief to dyspeptic symptoms it has been found distinctly useful. The chief feature of the method lies in the diminution of the bromide dose, from 20 to 30 grains of one of these salts at bedtime being sufficient.

Immunization (Ceni's Method).—The idea of rendering epileptics immune to their fits, either by the injection of blood serum from one epileptic to another, or

by reinjecting into patients the blood serum which had been previously withdrawn from them, is due to Ceni. The theory upon which this method is based is determined by the belief in the existence of a toxic biochemical substance in the blood serum of epileptics. From his experiments Ceni concluded that there are two active principles in the blood of epileptics, one circulating in a free state and possessing toxic properties, the other in a latent state, having a stimulating action upon the elaboration of the toxic agents. The practical utility of this method in the treatment of epilepsy, even in the hands of its originator, had not been sufficiently satisfactory to render its application general, while later investigations, more especially at the hands of Sala and Rossi, have failed to confirm the original results.

THE TREATMENT OF HEMOPTYSIS.

FRANCIS HARE, of Brisbane, in *American Medicine* of April 1, 1905, reports his results and those of others in his method of treatment. He sums up the matter by stating that of 16 attacks of hemoptysis occurring in 9 consecutive cases (8 tuberculous, 1 mitral) and treated by amyl nitrite inhalation, all save one ceased within three minutes; in the exception cessation was delayed for ten minutes.

The treatment has obvious advantages. In hemoptysis there is a highly vicious circle in operation. The intrapulmonary irritation of effused blood causes cough; coughing, like any other sudden exertion, causes rise of blood-pressure; rise of blood-pressure induces fresh bleeding; and so on, the circle continuing to revolve in many cases until the loss of blood has been sufficient to reduce blood-pressure materially and thus end the hemorrhage. This natural cure was at one time imitated by physicians who resorted to the lancet. The treatment by amyl nitrite is another imitation, less complete, but more economic than venesection. The circle is broken at the same point and by the same means, namely, reduction of general blood-pressure, but the blood being saved, the procedure may be repeated as often as necessary.

The drug causes no interference with

cough; it is the influx of blood to the ulcerated lung tissue which is stopped, not the efflux from the bronchial tubes. Consequently blood-pressure already effused is rapidly cleared, retention and subsequent septic pneumonia obviated.

So far as the writer knows the treatment is absolutely safe, and is easily and rapidly applied. Hence it can be used by the patient in the absence of professional supervision, a point of considerable practical importance. It is a matter for surprise that the freedom from hemorrhage conferred by a drug whose influence is so fleeting should last so long as seems to be the case.

DO THE SALTS OF THE GERMICIDAL ACIDS POSSESS GERMICIDAL PROPERTIES?

H. C. WOOD, JR., answers this question in the *University of Pennsylvania Medical Bulletin* for March, 1905.

It is well known that salicylic acid, benzoic acid, and other members of this group are actively germicidal, but their slight solubility interferes with their use as practical disinfectants. The sodium salts of these acids are freely soluble, and if they possessed the bactericidal properties of the acid they would be of great value. Experiments were made to elucidate this problem upon bacteria obtained by exposing nutrient bouillon to the air until it was thoroughly cloudy, and then adding to this bouillon varying strengths of salicylic or benzoic acid, and inoculating from this at different intervals into sterile bouillon.

It was found that one minute's contact with 0.5-per-cent salicylic acid solution destroyed the organisms, but that after ten minutes' exposure to a 2-per-cent solution of sodium salicylate a good growth was obtained.

Similarly with benzoic acid a 0.6-per-cent solution of the acid prevented growth after five minutes' contact, but a good growth occurred after five minutes' exposure to a 2-per-cent solution of sodium benzoate. It was found that bacteria would not develop in bouillon containing one per cent of sodium salicylate.

It would seem, therefore, that the sodium salts of these acids are slightly antiseptic, but far inferior in germicidal power to the acids themselves.

*OBSERVATIONS ON PNEUMONIA, WITH
SUGGESTIONS FOR TREATMENT.*

KEEFE writes on this subject in the *Boston Medical and Surgical Journal* of March 30, 1905. He finds, on perusal of most of the recent papers on lobar pneumonia, that the surprising thing is that so little attention is given to the treatment of the congestive stage. For it is in this stage, if in any, that we may hope to accomplish results. From the old reducing or antiphlogistic treatment of tartar emetic, mercury, and bleeding, we seem to have gone to the opposite extreme of digitalis, ammonia, and whiskey—one fully as pernicious as the other; and regarding the first or congestive stage, the latter is much more reprehensible. What physician, on being called to a case of congestion of old age or debility, would ignore counter-irritation and depressants? But this is actually what most are doing with reference to pneumonia. In this matter of counter-irritation in pneumonia the text-books are sadly out of tune, one advising their use in the stage of resolution and thinking them of no use in the primary stage, the other recommending them for the pleuritic pain only, whereas their rational use is, like cupping and leeching, for their derivative effect, to draw blood to the superficial arterioles and capillaries, the object being relief to the overfilled pulmonary capillaries. Be it remembered that the congestion of the first stage of pneumonia is very different from the congestion accompanying the edema usually present in the two remaining stages—the one being the active congestion that precedes and accompanies all inflammations; the other is passive and due to obstruction to the return blood to an overful heart, and to loss of the propelling power of the lung by reason of its loss of elasticity. Whatever justification there may be for stimulation in the latter condition it is perfectly indefensible in the former. The author therefore urges that neither digitalis nor stimulants be employed in the first stage of pneumonia, with the full knowledge of and notwithstanding the methods and claims of Petresco and his followers, and of the supposed germicidal effects on the pneumococcus ascribed to digitalis by Maragliano. The first stage is where

our closest attention and active treatment are not only justifiable, but demanded.

Appreciating the lowered arterial tension in pneumonia, a choice of two methods of treatment presents itself—the one homeopathic to the existing vascular condition, and consisting of veratrum, aconite, including the too frequently discarded bloodletting, tartar emetic, and mercury; the last three, though the old standard remedies of the so-called allopaths, are really homeopathic to the existing condition, for they still further reduce the vascular tension. On the other hand we have digitalis, alcohol, and ammonia, which increase arterial tension. The author's preference is most decidedly for the former. Taking, then, into consideration the condition, habits, and age of our patient, and assuming that we are called at a sufficiently early period of the attack, our treatment should be as follows:

During the author's service at Mercy Hospital, Springfield, Mass., it has for some years been his custom in treating unilateral pneumonia to give virtually no medicine. The patients are instructed not to lie on the affected side, as they are prone to do, but by means of pillows they are supported and kept on the side of the sound lung, thus favoring the emptying of the vessels of the lung by means of gravitation, while ice is applied to the affected side. This idea is original with him, and the results seem to justify its adoption, though the number of cases is too small to serve as a basis for any positive conclusions. The medicinal treatment, especially the first stage, should consist of: (1) One active purge; (2) wet or dry cups or leeches; (3) free use, all over the affected lung, of as strong counter-irritants as can be comfortably borne; (4) veratrum viride to bleed the lungs into the abdominal and general capillaries, or the direct abstraction of blood from a vein, followed, if need be, by infusion. For the remainder of the disease we are virtually powerless.

There may be a moment when a dose of digitalis, ammonia, or whiskey may do good, but the writer has not been able to find it, and believes most assuredly it is not before the latter part of the second or third stage; a few doses of morphine may be indispensable in pleuropneu-

monia. Plenty of fresh air should be admitted, but the body covering should be sufficient to promote perspiration and dilatation of the superficial capillaries.

In conclusion the writer says there is one thing we owe to ourselves, to our profession, and our patient: that after adopting a plan of treatment we pursue it fearlessly to the end, so that our observations will have some value in teaching us to exercise charity in forming a judgment on the results of our confrères, and that we ourselves and our professional brethren may profit by the results of our work.

THE TREATMENT OF TYPHOID FEVER AT THE ROOSEVELT HOSPITAL.

THOMSON in the *Medical News* of March 25, 1905, details his experience with this disease and advises that with the first sign of dryness at the tip of the tongue, the oil of turpentine in 15- to 20-minim doses be given in mucilage every three hours till the tongue is moist again.

When cardiac weakness develops, alcoholic stimulants are given in the form of whiskey. The writer objects to repeated small doses, such as half an ounce, and much prefers an ounce at a time every three hours, given after milk. At first alcohol should be given only after midnight, then, as the fever continues, in the evening, and then in the afternoon. It is better to omit it in the forenoon, for that is the natural period of lessened fever and prostration. The secret of giving alcohol is not to look upon it as possessing any continuous sustaining power, but only that of a temporary stimulant for times of prostration, and hence the dose should be large enough to produce stimulation.

Strychnine is very commonly regarded as a needed cardiac stimulant in this affection. Its routine and persistent administration is mischievous, and it is well to suspend it every few days, and note the effect. Occasionally in pronounced cardiac debility the writer prescribes it in combination in a pill of

R Strychnine sulph., gr. ss;
Caffeine citrat., grs. xxxvj;
Sparteine sulph., grs. xv;
Ext. taraxaci, q. s.

M. Div. in pilul. xx. S.: One every three hours.

Much the most certain of all cardiac stimulants, however, is camphor given subcutaneously in $7\frac{1}{2}$ -grain doses dissolved in 20 minims of sterilized almond or olive oil. The author has seen it succeed in conditions of collapse in typhoid, as well as in pneumonia, when every other heart stimulant had failed. It may be repeated once an hour in urgent cases, or once in three hours.

THE INCREASING USE OF LEAD AS AN ABORTIFACIENT.

Under this somewhat startling heading in the *British Medical Journal* of March 15, 1905, HALL reminds us that ecboic properties of lead have been well known to the medical profession for a very long time, and every text-book dealing with the subject of plumbism refers to the frequency with which females suffering from this affection tend to abort. The idea of using this drug primarily as an abortifacient would never occur to any one having any medical knowledge; it would resemble too closely the Chinaman's method of obtaining roast pig by burning down the pigsty. Unfortunately, the quack and the patent pill vender, devoid of responsibility, aiming only at results and heedless of consequences, have discovered in lead a drug which is at least effective and accomplishes the desired object.

So far as the writer has ascertained from the literature dealing with plumbism, the common use of this drug by the laity for the purpose of procuring abortion is only of comparatively recent date, perhaps some ten or fifteen years.

To Dr. F. M. Pope, of Leicester, belongs the credit of first making the observation. In 1893 he reported two fatal cases of plumbism, the source of which was discovered after death to be diachylon, taken for the purpose of bringing on abortion. Since that time others have reported similar cases, among whom may be mentioned G. F. Crooke of Birmingham, Bell Taylor of Nottingham, Branson of Nottingham, Wranghan of Leicester, and Sheffield Scott of Nottingham, Jacob and Trotnam, and Layton, of Walsail.

It will thus be seen that this pernicious practice prevails notably in the midland districts of England, and that it is grad-

ually appearing to widen its circle. It seems to have reached Sheffield as early as 1901, as shown by Wrangham's case published in that year, in which insanity was produced, so that the patient came under his care in the South Yorkshire Asylum. It does not, however, seem to have become at all widely spread until the last year or two. It is possible that the cause of the plumbism has been overlooked in many cases, and cases have occurred that have been attributed to the water-supply, which has in the past caused wide-spread plumbism in the Sheffield district.

During the last few months, however, there have been a considerable number of similar cases of plumbism in women, some of which have been definitely traced to the wilful taking of various preparations for the purpose of procuring abortion, whilst others fail to show any other cause for their symptoms, and in them the same source is highly probable. So numerous have the cases become latterly that it seems desirable once again to call the attention of the profession to this growing evil, which causes such terrible suffering and such serious after-results to these ignorant women. Another reason for bringing this forward is that so many medical men are found who are quite unaware of the possibility or likelihood of such a thing, and hence are not on the lookout for anything of the kind. The author had three women in one ward at the Royal Hospital all gravely ill from this cause, and at the same time he saw a fourth case in a neighboring town which proved fatal, and in none of these four cases had the medical men in charge of them any suspicion as to the true nature of the disease or of this traffic in lead as an abortifacient.

Some of the cases seen by the writer have been acute in character, and presented symptoms of abdominal pain, with vomiting and constipation, strongly suggestive of abdominal disease. These cases are most likely to lead to an error of diagnosis, as has been pointed out by Ransom and others. They imply the taking of large doses of poison. It is mainly in connection with this use of diachylon as an abortifacient that most of the papers hitherto published have dealt; but there is now an equally seri-

ous, if less immediately grave, problem to deal with—namely, the sale of quack "female irregularity" pills, containing only minute traces of lead, and leading insidiously to the most chronic forms of plumbism.

TREATMENT OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.

In an article in the *Medical News* of May 27, 1905, HUBER tells us that in the treatment of cerebrospinal meningitis the general nutrition must be sustained by an appropriate fluid diet; an ice-bag to the head, with proper support to head and neck, will add to the patient's comfort, and raising the head of the bed six to eight inches appears to afford relief. Plenty of water is to be given, and the body functions in general regulated. The urine may have to be drawn off during the early stages. The ordinary rules applicable to a severe febrile condition must be observed. The nasopharynx, frequently the seat of catarrhal conditions, ought not to be neglected.

Warm salt solutions, six-tenths of one per cent, slowly poured into the nares by means of a spoon, improve the breathing and in a measure prevent the tongue and mouth from becoming dry and parched. During the early stage, when swallowing is difficult because of a paretic condition of the pharyngeal muscles, and later on in chronic cases, forced feeding through the nose or mouth may be indicated.

Pain and restlessness must be relieved by codeine or morphine per os or hypodermically. Phenacetine, with or without codeine, relieves the headache, etc. Bromides have been recommended for the same purpose. They, however, disturb the stomach and give rise to a fetid breath.

Ergot in the beginning has been greatly praised. Severe vomiting in the later stages is relieved by lumbar puncture, by small hypodermic injections of morphine, by ice to the epigastric region, and careful dieting. Sodium benzoate or caffeine in appropriate doses, subcutaneously, affords prompt relief in cases in which pulmonary edema occurs. Adrenalin is of value in this state.

Packs or baths (90°, 95°, or 98° F.), with or without mustard, relieve the

irritability, improve the general circulation, and frequently promote a quiet sleep. They lessen the muscular spasm and rigidity in general.

The method of Aufrecht, initiated in 1894, has been extravagantly lauded. M. Rogansky published remarkable results, claiming 66 per cent recoveries. Hot baths at 104° F. (an ice-bag being applied to the head) were administered for fifteen to twenty minutes once or twice a day.

It is claimed that they restore consciousness, calm the delirium and restlessness, and relieve the pain. The temperature, vomiting, or rigidity was not affected to any extent. The method is worthy of a trial.

"Lumbar puncture is not a procedure for the careless or the novice. It demands skill, cleanliness, and judgment" (Elsner). One patient, an Italian not familiar with English, struggled so that it was impossible to proceed; in four others the puncture was made very late.

In hospital practice the clinician is materially aided by the bacteriologist. In fifty-one cases occurring during one term of service the diplococcus was found in forty-four.

In one of this year's cases pneumococci were found. In another, an infant, suspected to be syphilitic, polynuclear leucocytes were found in the fluid; later on, however, the diplococcus was detected.

The organism has been detected in smears as early as twelve hours from the onset; in the centrifuged specimen, as late as the thirty-seventh to forty-fifth and forty-eighth day. Cultures have revealed its presence much later.

Lumbar puncture, apart from its diagnostic value, relieves the intracranial pressure to a certain extent. It is necessary to repeat the procedure at intervals, particularly in chronic cases. Lumbar puncture, with injections of various antiseptics, has not yielded very brilliant results.

Each case presents its individual indications. The strength of the patient must be maintained by appropriate nourishment and skilful nursing. Nourishment and nursing are of the utmost importance, particularly in the protracted cases. The use of Credé or mercurial ointment along the spine has not met

with any appreciable success. In the typhoid state alcohol is indicated and well tolerated. In chronic hydrocephalus potassium iodide given in small doses and lumbar puncture may prolong life. Surgical interference may possibly give better results in appropriate cases.

The iodides are indicated with a view of causing the absorption of plastic exudates. Hypodermoclysis, given early to overcome the prostration and initial shock, to dilute the toxins, and later on to supply fluids to the tissues, has been of considerable value.

Local bleeding by leeches had been resorted to in a large number of cases before admission to the hospital, without appreciable benefit.

In view of the interest excited by the antitoxin treatment a few remarks may be in place:

"That branch of bacteriology which deals with the mutual antagonistic relations of pathogenic germs is still in its infancy. The facts already discovered suggest important developments in the future. To what extent clinicians will be able to utilize these antagonisms in the treatment of diseases it is difficult to foretell."

In the editorial (*Medical News*, March 4, 1905, p. 409) from which the above extract is made, Coley's work with the toxins of the *Bacillus erysipellatos* and *Bacillus prodigiosus* in the treatment of inoperable sarcoma is instanced. It is also stated that Metchnikoff's important data have not yet received practical application. He has shown that the *Bacillus mesentericus*, the *Bacillus subtilis*, and the bacillus of symptomatic anthrax weaken the toxins of the tetanus bacillus. The bacillus of Eberth destroys the toxins of diphtheria.

A further contribution to the subject, and one which induced Dr. E. Waitzfelder and other clinicians to resort to diphtheria antitoxin in treating cerebrospinal meningitis, was made by Dr. A. J. Wolff, of Hartford. He found that there is a decided antagonism between the Klebs-Loeffler bacillus and the meningococcus, and during the course of the study on this portion of the investigation found that pure cultures of the meningococcus were killed by antidiphtheritic serum, and not only precipitated when mixed with the latter, but active

bouillon cultures, when mixed in bulk with the antitoxin, are precipitated in the same manner.

The results obtained at Roosevelt Hospital, in the services of Drs. Peabody and Jacobi, have not tended to confirm the enthusiastic reports of the beneficial effects observed at Gouverneur Hospital. After a careful trial the procedure did not impress those who had studied the cases as influencing the disease to any degree. The intraspinal use of the remedy did not yield any better results. The latter method was tried in the children's service at Beth Israel Hospital, and given up because of the negative results.

*THE RESULTS OF MEDICAL TREATMENT
OF PEPTIC ULCER AT THE BOS-
TON CITY HOSPITAL.*

In the *Boston Medical and Surgical Journal* of March 20, 1905, SEARS reports these results. He says that the following conclusions, for whose general character our present limited knowledge of the end results of surgical treatment must be the excuse, may be formulated:

1. That the strongest argument so far presented in favor of the surgical over the medical treatment of peptic ulcer is the failure of the latter.

2. That the danger to the patient from operation in skilled hands is not greatly increased, the immediate results of both medical and surgical treatment being about the same.

3. That the future interest to the clinician lies, not in hearing of the prowess of the surgeon, recorded in long series of successful operations, but in learning their end results. Until they are known conservatism seems the proper course, but when medical treatment has failed, as shown by the recurrence of repeated small hemorrhages, or the persistence of other symptoms, a resort to operation is legitimate and justifiable.

4. That the surgical treatment of hemorrhage is of questionable utility, since in many cases it has continued, or first appeared, after operation, and in some at least of the successful ones it is doubtful if operation had any influence for good.

5. That the interests of the patient will be best served, when doubt arises as to the advisability of operation, if the decision is not left to the physician or

surgeon alone. Only by their coöperation will it be possible to avoid either the sacrifice of life from unnecessary delay or the performance of useless or even harmful operations.

THE CAUSE AND TREATMENT OF PRURITUS ANI.

WALLIS advises the following plan of treatment in the *British Medical Journal* of May 13, 1905. He states that the results are much better when patients can lie up for ten to fourteen days; with the following treatment: The usual preparation for a rectal operation having been carried out, the patient is anesthetized and put in the lithotomy position. The sphincter is moderately stretched, and the ulcer or ulcers brought into view and treated with the electric thermocautery, and the cautery is also applied to the thickened skin as well, especially in any case where fissures or clefts exist between the hypertrophied skin folds. Vaseline is applied to the cauterized area, and a morphine suppository inserted into the bowel. A pad of wool is kept in position by a T-bandage, and the patient is put back to bed and kept there.

A purge is given on the third night, and a warm boracic bath is taken twice a day. After the bath the skin is thoroughly dried and powdered with starch and zinc powder, and a small piece of cotton-wool impregnated with powder is introduced just inside the sphincter.

In all these cases the irritation ceases either at once or after a few days, and if proper care is taken it does not return, and the patients are usually well in about fourteen days, but the absolute healing of the ulcer may often take longer than this.

In cases where the abrasion practically encircles the bowel the writer has thought it better to dissect off the ring of tissue involved, bringing the upper cut edge down to the anal margin, to which it is attached by a continuous catgut suture—thus removing all the lining membrane of the proctodeum. These cases are not so immediately successful as the others because the condition of the mucocutaneous margin is indifferent and healing is at times protracted, and some temporary contraction may occur;

but with proper care this disappears, the result is good, and the pruritus is cured.

Having regard to the large number of out-patients suffering from this trouble, it is obviously impossible to take them all into hospital, and the following plan is adopted: The patient being placed in the knee-elbow position, a bivalve speculum is inserted into the rectum and kept in position about half opened. Some eucaine is injected behind the ulcer. This renders the area anesthetic and brings the ulcer into prominence. The ulcer is either treated with lactic acid or burnt with the electric thermocautery, the speculum removed, and a morphine suppository introduced. Zinc and starch powder is dusted over the skin and a pad and T-bandage are applied. The subsequent treatment is the same as has already been described.

A large percentage of these cases are cured; many are improved. A few do not respond for long to the treatment, but this is because it is not properly carried out by the patients, and, indeed, it must be often a matter of considerable difficulty for them to do so.

The interesting feature in many cases is the immediate cessation of the irritation after the cautery has been applied. The irritation may recur spasmodically to a slight extent, but it is easily allayed and soon disappears entirely. The permanent success of the treatment depends largely upon careful nursing under the personal supervision of the operator.

CHLOROFORM AND COAL GAS.

G. BETAGH (*Il Policlinico*, December, 1904) describes a research undertaken to determine the effects of administering chloroform in the near neighborhood of a gas flame. The inquiry was suggested by the result of the installation of a gas stove in an operating theater so large as to be unduly cold. The stove was situated more than three meters from the head of the operating table. Two operations were performed under chloroform. The anesthetist suffered from headache during the administration, and afterward vomited. His two assistants also suffered from headache and a sense of illness.

One of the patients, a woman of twenty-three, underwent laparotomy for

an ovarian cyst. The operation was completed without any mishap, but afterward the patient suffered from severe vomiting and convulsions. For some hours her pulse was very feeble and frequent. Her urine was free from albumin before the operation, but on the next day hemoglobinuria, hematuria, and cylindruria were observed. For some days the skin showed a slight yellow tint. Chronic nephritis was established.

The other patient was a man, aged forty-three, suffering from malaria and an enlarged spleen, and operated on for inguinal hernia. Some hours after the operation he showed signs of collapse. In spite of prompt treatment he died twelve hours after operation. Much blood was found in the abdomen and in the tissues at the seat of operation, and no mechanical explanation from this hemorrhage could be discovered.

The author supplies references to several somewhat similar cases of injury which have been attributed to poisoning by oxychloride of carbon, a product of the evaporation of chloroform in the presence of the products of combustion of coal gas. Blood changes were attributed, as early as 1848, to chloroform itself without gas, and more recently albuminuria and cylindruria, but not hemoglobinuria, have been ascribed to the action of chloroform alone. In the case of Stempel febrile hemoglobinuria and albuminuria lasting for some weeks resulted from the inhalation of the fumes from a gas stove, the causation of the symptoms being as far as possible substantiated by experiments on animals.

To clear up these ambiguities, Betagh experimented upon twelve dogs and rabbits, sometimes chloroforming them in the immediate neighborhood of a gas-jet, and sometimes leading to the chloroform mask the products of combustion of a distant gas-jet. By poisoning with the products of the combustion of gas much less harmful effects were produced than by evaporating the chloroform in close proximity to the gas-jet, and Betagh suggests the possibility that Stempel may be mistaken in attributing his symptoms to coal gas without chloroform. Microscopical examination of the tissues of animals dying soon after the administration of chloroform near a gas-

jet showed small extravasations of blood in the lungs, and passage of the blood elements into the interstitial tissue between the alveoli, enlargement of the spleen, with many red corpuscles in the pulp, and some true extravasations of blood, changes in the liver, sometimes including the formation of necrotic areas. The most important changes were in the kidneys. The Malpighian capsules were full of blood, and there was much congestion, especially in the cortical substance. There were extravasations of blood into the connective tissue, with red corpuscles inside the tubules. In some places the tubular epithelium was turbid, swollen, or necrosed. An illustration shows some of these changes.

The principal point established by the experiments and by the clinical cases described is that the decomposition of chloroform by a gas flame liberates products which are not only harmful to the lungs, as the cases of other observers would tend to suggest, but also poison the internal organs, causing in them hemorrhagic lesions.—*British Medical Journal*, April 22, 1905.

THE MEDICAL TREATMENT OF INSANITY.

The *British Medical Journal* of April 22, 1905, contains an article on this subject by ROBERT JONES. He states that the treatment of mental disorder which comes within the experience of the general practitioner resolves itself most often into the treatment of cases of acute excitement or uncontrollable fury, but it must not be taken for granted that insanity with excitement invariably means a condition requiring antiphlogistic remedies. In cases in which there is delirium, when the pulse is full, bounding, and firm, and there are symptoms of sthenic inflammation, then venesection may prove beneficial. Venesection has been used by the writer for the venous engorgement only of the status epilepticus, and then with good results. He has used the wine of tartrated antimony for furious excitement, with vascular and cerebral congestion, and when combined with morphine it is very effective. Aconite is a useful remedy in sthenic maniacal states and the exacerbation of recurrent insanity with cerebral hyper-

emia. He has also used ice-bags to the head, and continuous immersion.

The difficulty in keeping maniacal patients in a warm bath at the body temperature, or at 100°, has been so great that to avoid constant struggling he has abandoned the practice. The exact physiological effects and the therapeutic value of long immersion are not quite understood. It has been considered to be "derivative"—that is, the cutaneous vessels dilate and thus lessen the quantity of blood in the nervous system; but it has also been suggested by some that the effect of warm baths is to increase metabolism, by others that the pressure of the water on the skin gives a tone to the cutaneous and to the general circulation which was previously deficient.

The use of the "wet pack" has been urged in cases of insanity with excitement, but there are dangers accompanying it, and the author does not advocate it as a reliable remedy, although for certain bodily conditions accompanying insanity he has tried it with good effect. Insanity, even with excitement, is a disease generally of under-nutrition, and whatever the pathological conditions may be which cause acute mania or acute melancholia, we can at present go no further than vaguely describe them as "a disturbed biochemical state" of the brain tissue, and the author's experience in the case of all the acute insanities recommends a generous and supporting rather than a depletory method of treatment.

In the treatment by the medical practitioner of cases of melancholia the tendency to suicide must be regarded as ever present, and the question of "foreign travel" not infrequently comes up for consideration. Speaking physiologically, the best brain work is done when the cortex receives abundant and definite stimuli from without. In travel, especially in the case of sea voyages, the life on board ship is exceedingly irksome, dull, and monotonous, and should not be advised for cases of incipient insanity, or even for cases in whom there may be a threatening of mental breakdown with symptoms of depression. In a voyage to Colombo made by a distinguished writer, physician, and man of affairs he mentions two cases, both of whom threw themselves overboard, whose lives would probably have been spared had they not

been urged to travel abroad. Even trips to the Continent do not provide an Englishman with the comforts he obtains at home, and which he hopes to receive abroad.

Electricity administered by currents through water, in the form of electric baths, has been greatly advocated for the depressed varieties of insanity, more especially for atonic stuporous states in young persons. The galvanic current is passed through warm water at 100°, in which the patient is immersed. The author has used such for many weeks at a time, daily, or several times a week, for about ten to thirty minutes; he has kept a record of their weight whilst under treatment, and found it to go up, and their general mental and bodily conditions to improve. He confesses to being favorably disposed to this form of electric stimulation, and it certainly appears to aid metabolism, although how and in what way he is unable to explain.

As to the action of drugs upon the brain, it cannot be localized so accurately as can that of drugs acting on the spinal cord and nerves, but their action illustrates two important general laws: first, the law of dissolution, which shows that when a drug affects functions progressively, those first affected are the highest in development—that is to say, they are the last acquired by the individual and the last to appear in the species. The next affected are those next to the highest, and so on, until finally the lowest of all, from an evolutionary point of view—namely, the functions of respiration and circulation—are affected. We are acquainted with this exemplification in the case of alcohol, for the first functions to be disordered are those of the intellect, especially the highest, such as judgment and reason; then follow disorders of movement, and death from failure of respiration and circulation. Secondly, drugs in moderate doses excite a function, but in large doses they paralyze it. This is familiarly illustrated in cases of chloroform inhalation, the first effects being motor excitement followed by motor paralysis, the excited limbs becoming motionless and weak. In the same manner drugs which are cerebral stimulants may become hypnotics, as is exemplified in the use of opium. Conium is also one of the remedies which appears

to have contradictory effects, but this is probably explained by the fact that the relation between conia and methyl conia—two alkaloids with opposite effects—varies in each preparation. An excellent remedy is succus conii (10 minims to 1 drachm) for controlling motor excitement. With the abolition of abnormal muscular action the ideas become less rapid and mobile, mental processes become clear, and sleep occurs. It is best to begin with small doses, and to combine these with strychnine or some other cardiac stimulant. As a nervous tonic for persons who suffer from overwork, or who are run down, who are weary and easily tired, the various preparations of phosphorus, more especially, perhaps, the glycerophosphates, have in certain quarters had a reputation. On theoretical grounds phosphorus should have been in much favor as a brain tonic, and it has been recommended for its efficacy in various forms of insanity; but the aphorism “without phosphorus no thought” is not borne out by the experience of the clinical psychiatrist.

The chemistry of the brain points out that lecithin, which enters largely into the structures of nervous tissue, is a compound which breaks up into glycerophosphoric acid and cholin or neurin, and in certain bodily states associated with convulsions it appears probable that the amount of cholin in the blood represents the amount of waste caused by the breaking up of nervous material in the discharge of energy. But the particular rôle of phosphorus in the brain has hitherto received no satisfactory explanation, and although the restorative nutrition of the brain is an important task for the psychiatrist, the problem of furnishing a reliable and assimilable preparation of phosphorus has yet to be solved; in consequence the various phosphates may be administered *ad nauseam* without modifying illusions, hallucinations, or delusions; and it is safe to assert that phosphorus is not to the brain in insanity what iron is to the blood in anemia.

As to hypnotics, for the pure relief of insomnia paraldehyde in doses of ʒss to ʒij (twice the amount is given for an enema) is one of the safest, for it stimulates cardiac action; moreover, valvular heart disease is not a strong contraindication. It has a peculiarly disagreeable

taste and smell, which are best disguised in highly flavored syrups or wine. It is not recommended in phthisis or bronchial affections, as, being volatile, it is mostly eliminated by the lungs. Amylene hydrate, in doses from m. x to m. xxx, has been much recommended, and the writer has used it. Somnal, gr. xx to gr. xxx; methylal, 3j to 3ij; hypnone, chloralamide, chloralose, hypnal, tetronal, and trional—all have their advocates. The writer has used sulphonal, gr. xx, three times a day (insoluble in water), trional (less insoluble), and tetronal. These have a cumulative effect, which is their best quality, and they are excellent remedies for strong, dangerous, and aggressive maniacal patients. The effects of sulphonal do not appear fully for some hours, and as a night draught it should therefore be given early in the afternoon. The symptoms to be watched for are vertigo, ataxia, and hematuria. After death the blood appears to be fluid, and to resemble dark port wine. The crystals may disturb digestion and cause diarrhea. If the patient is kept in bed during the administration, the physiological effects are intensified. Hyoscine in subcutaneous doses of gr. 1/100 to gr. 1/50 is a powerful and valuable remedy for the control of acute motor excitement in violent maniacal cases, those who are strong and muscular, and who in their fury may commit homicide. It differs from sulphonal and trional in that its effects are immediate, but they soon pass off. When the motor disturbances are controlled, quiet sleep is produced. It is not a remedy for feeble cases. Hyoscyamine, dose gr. 1/60, combined with morphine, is a very effective remedy for excitement and sleeplessness. Cannabis indica is uncertain in its action; it gives rise to visual hallucinations and rapidity of ideas, the latter causing a feeling in the mind of indefinite stretches of time. When combined with bromide of potassium it is a useful remedy in senile insomnia, and especially when there is mental depression.

Possibly, of all the remedies for insomnia, the bromides are the most useful, for they lower reflex excitability and tend to slow down or diminish cortical activity. They are better hypnotics for states of excitement than for depression,

but they may be combined with stimulants in such cases, and are therefore better suited for the insomnia of maniacal patients and for hallucinations of a tactile nature—paresthetic states, as they are called—occurring in parietic and tabetic persons; also in cases of pharyngeal and laryngeal discomfort, giving rise to delusions of things in the throat. The effect of a single large dose is much better than that of long-continued underdosing, and there is no danger of establishing a habit in regard to it. For alcoholic cases, for uterine reflex pains, such as occipital headaches, or in cases of neurasthenia with night terrors or unpleasant dreams, and combined with citrate of caffeine in cases of climacteric mental restlessness, the bromides are most useful. The only contraindication is unsoundness of the circulatory organs and anemia, and the result of long-continued administration of bromides, as a dull torpor, with loss of memory and stupor. Bromide of strontium is stated to be a better remedy for epilepsy than bromide of potassium, and to be also safer against cardiac failure, which is apt to occur in epilepsy, and bromide of sodium is stated to be the least often accompanied by gastric irritability. In association with chloral it is an excellent hypnotic for acute hallucinatory excitement, and possibly one of the best formulæ is chloral hydrate, sodium bromide, and tincture of hyoscyamus. The contraindications to chloral are valvular or fatty heart disease; also if long administered with the bromides for epilepsy the tendency to cardiac failure from congestion arising in repeated fits should be remembered; also it loses effect by repetition. The dose of chloral is gr. x to xx, largely diluted and flavored with aromatic syrups. It may also be given freely in milk. If given per rectum it is necessary to compress with the hand to retain the enema. The bromides are administered in doses of gr. xx to 3j, or even up to 3j and more. It is stated that neurotic medicines, such as are the bromides and also chloral, are best administered on an alkalinized stomach, hence a glass of milk is considered an effective adjuvant to such remedies.

Possibly of all the hypnotics, opium, together with its derivative morphine, is the one most often used, and it is prob-

ably the best remedy for psychic as well as physical pains, such also as are due to painful "vagus" sensations from cardiac crises and dyspnea. Opium relieves acute mental depressions, especially in old people, and it appears to act as a direct stimulant in the cardiac weakness of some senile cases. It appears to act directly also upon certain mental states, and to be antithetic to the painfully emotional states of melancholia and persecutory delusions. It is contraindicated in states of mania, but morphine may then be administered. Morphine is often the best anodyne for the precordial pain of melancholia, as also for painful hallucinations in exhausted cases. A combination of opium with belladonna may assist to prevent the impairment of digestion caused by opium taken alone, especially in regard to constipation. The great danger in the use of opium is the toleration established and the risk there is in commencing a bad habit which may become a terrible disease.

CEREBROSPINAL MENINGITIS, LUMBAR PUNCTURE, PURULENT CEREBRAL FLUID; PERFECT RECOVERY.

AGATSTON (*New York Medical Journal*, Feb. 4, 1905) gives a full report of a case of purulent cerebrospinal meningitis which recovered after withdrawal of 35 cubic centimeters of purulent fluid from the spinal canal, although the patient later developed lobar pneumonia and arthritis of one knee-joint. Cultures of the pus removed from the spinal canal showed a pure growth of the meningococcus of Weichselbaum.

TRAUMATIC RUPTURE OF THE INTESTINE WITHOUT INJURY TO THE ABDOMINAL WALL.

The rarity of this accident and the well recognized difficulties in diagnosis led FLINT (*Medical Record*, Feb. 18, 1905) to report two cases which serve to emphasize the difficulties in diagnosis, and the importance of prompt treatment in abdominal injuries of this character. The writer discusses at length the symptoms and treatment, and summarizes as follows:

Any injury to the abdomen may be associated with damage to the intestine or other viscera.

An exploratory operation is justifiable in cases with distinct rigidity.

An operation is absolutely indicated when there is, besides rigidity, pain, tenderness, vomiting, shock, dulness, or other symptoms indicative of some intra-abdominal disturbance.

Cases not operated upon are lost.

The importance of early operation cannot be emphasized too strongly.

At present the death-rate is about 75 to 80 per cent.

When a greater proportion are operated upon early, the death-rate will be much lower.

DISPLACEMENTS OF THE ASCENDING COLON.

After a consideration of the pathology of nephroptosis accompanied by digestive disturbances and ptosis of the right colonic angle, ALGLAVE (*Revue de Chirurgie*, No. 12, 1904) concludes as follows: (1) The best treatment for intestinal trouble accompanied by nephroptosis is nephropexy. (2) The operation is not always effectual. (3) If nephropexy does not suffice, one should operate on the colon, raising it, straightening it, and freeing it from adhesions. (4) If the deformity of the ascending colon is very great, it may be better to exclude it and perform an ileocolostomy or sigmoidostomy. (5) This is especially required in cases of hepatoptosis.

ANKYLOSIS OF THE ELBOW—NEW OPERATION.

SCHANZ (*Münchener medizinische Wochenschrift*, No. 50, 1904) proposes a new operation for ankylosis of the elbow.

In a case of this nature, fixed in bad position, he exposed the joint from the inner side, and was able to spring the bones apart by means of a chisel. He then cut away the articular surfaces and made a false joint which had full normal motility. To prevent the bones growing together, he cut a flap of subcutaneous fat from the inner side of the arm and pushed it between the bones, and held it by sutures on the outer side of the joint. There resulted perfect recovery with full, painless motility. It is to be noted that the humero-radial articulation was normal, but the author thinks the method applicable also where this joint is ankylosed.

PROSTATECTOMY—INDICATIONS.

DESNOS (*Presse Médicale*, No. 99, 1904) holds that prostatectomy should not be performed until some good indication arises. If there are digestive troubles or vesical infection these should be relieved before operation. Age is no bar to operation. Cases with acute infection of the kidneys are not fit subjects. The usual indication for operation is retention, but occasionally extreme pain may necessitate it. In retention of less than three months' duration the physician should wait and try other means, but after this time even careful catheterism may not prevent kidney disease. If infection of the bladder resists proper treatment, operation is indicated if there is retention. Although the results are not always satisfactory, and the mortality is still over six per cent, the mass of facts is in favor of operation, as the mortality is steadily falling and the health is generally much improved. Of the various procedures perineal prostatectomy is the best in most cases.

TUMORS OF THE TONSIL—EXCISION.

PREINDLSBERGER (*Wiener klinische Rundschau*, No. 48, 1904) describes an operation for carcinoma of the tonsil, in which he found it necessary to resect a large part of the angle of the lower jaw in order to reach the growth freely. He recommends this procedure as an improvement on resection of the ascending ramus.

POSTOPERATIVE VOMITING—LAVAGE TREATMENT.

CHASE (*Annals of Gynecology and Pediatrics*, December, 1904) reports three cases of obstinate postoperative vomiting successfully treated by lavage and introduction of physiological salt solution into the stomach through a tube.

The patients were those on whom serious abdominal operations had been performed, and for the relief of whose vomiting various other methods had been tried without avail.

His method consists in first removing the contents of the stomach through a tube, then introducing 12 to 14 ounces of salt solution. The patients were in a serious condition, and a hypodermic of strychnine was given to fortify the system against the depressing influence of

the tube treatment. Since in many such cases the tube must be passed while the patient is in the recumbent position, he advises the use of a tube stiffened with wire in order to facilitate its introduction. After the tube has been passed the wire is withdrawn.

TUBERCULAR ADENITIS—INJECTION TREATMENT.

For the treatment of tubercular adenitis SIMON (*Journal de Médecine*, No. 50, 1904) recommends the use of camphorated guaiacol. He injects four minims into the center of each gland. This causes a rapid diminution of size, and ultimate atrophy. Glands which are beginning to soften should not be treated after this manner. He has obtained absolute success in forty-six glands.

SPINA BIFIDA—OPERATIVE TREATMENT.

SECORD (*Canadian Practitioner and Review*, December, 1904) says that spina bifida occurs more frequently than in one-tenth per cent of births, that its prognosis is hopeless unless the complaint is suitably treated, and that favorable results are often obtained by treatment. These facts have led him to consider the subject in some detail.

As to the treatment of the condition, a committee of the London Clinical Society found in 1885 that by the injection of Morton's fluid in 71 cases, 27 died, 35 recovered, 4 were relieved, and 5 unrelieved. The committee accordingly reported in favor of this method. Jacobson in 1902 thought that excision of the sac gave the best results. This consists in removal of the excessive skin and meningeal membranes, and the restoration of the nerves to the spinal canal. Modern surgeons generally agree with Jacobson as to the method of treatment.

This represents two extreme views in reference to treatment of spina bifida, with the lapse of nearly a score of years between them. In 1884 Treves thought that if the sac contained the cord the result of excision would be fatal, and that if it did not contain the cord success might follow. Lovett's opinion was practically the same in 1887.

In 1889 the *Journal of the American Medical Association* expressed the opinion editorially that many of the in-

jurious results of the early operations were due to sepsis. From this time on more care was taken in regard to asepsis. However, the open incision was little used in the next few years. In 1891 Harris reported the cure of a lumbar meningocele by subcutaneous ligation; in 1892 Groner a similar case, and in 1895 Howitt six cases. Howitt did not return portions of the cord found in the sac to the spinal canal, but removed them with a ligature. This method was improved upon by Pearson and Knott, by returning extruded nerve tissue to the canal, thus relieving paralysis which existed before operation, instead of making it permanent as Howitt had done. Nicholls reported two cases where relapse followed the ligature, and improved the technique by using two rows of catgut suture at the neck of the sac. Up to this time no attempt had been made to prevent the escape of cerebrospinal fluid, but Pearson later thought it advisable to prevent this, which he did by packing the canal with gauze. Secord thinks that while in some cases hydrocephalus is relieved and even cured by the escape of the excess of cerebrospinal fluid, in other cases hydrocephalus appears to be induced by the removal of the sac of the meningocele or spina bifida. He reports two cases operated on by himself, by excision of the sac and multiple ligation of its base. Although in one of these cases the sac was the seat of suppuration following previous injection of Morton's fluid, both cases were cured. He thinks there is no absolute contraindication to the operative treatment of spina bifida, that any nerve tissue contained in the sac should be returned to the spinal canal, and that the neck should be closed by sutures and the sac removed. He adds that bony flaps are seldom if ever necessary.

SYPHILIS—TRANSMISSION BY BARBERS.

In the *Medical Record* of December 17, 1904, BELFIELD reports two cases of syphilis transmitted to men by their barbers. In one case a styptic pencil was used to check the bleeding from a razor cut on the skin, and in the other case the styptic pencil was used to check the bleeding produced by removal of an ingrowing hair with forceps. He says that in 1898 Robbins reported a similar case and recited several others. Belfield addressed a letter concerning syphilis to each of

twenty-five well known syphilographers in this country, most of whom replied. From these replies he gathered about thirty cases of probable transmission of syphilis by barbers. Several replied that they did not recall an instance of such transmission. Belfield thinks that transmission of syphilis by barbers is more frequent than returns would indicate, and that the greatest danger resides in the alum stick, the forceps, and the clipper.

He thinks that syphilis could be minimized, if not eradicated, through the general practice of circumcision, and that the later evils of syphilis could be limited if the subjects would take antisiphilitic remedies for two months in every year after the termination of active treatment.

STRANGULATED HERNIA—ANALYSIS OF TWENTY-FIVE OPERATIVE CASES.

VAUGHAN (*Virginia Medical Semi-Monthly*, Dec. 23, 1904) gives an analysis of 25 cases of strangulated hernia upon which he has operated. Out of 105 operations for inguinal and femoral hernia there were 25 cases of strangulation. Of these, 5 were femoral and 20 were oblique inguinal. Twenty-three were on the right side and 2 on the left. The percentage of strangulated hernias which are right-sided is greater than the percentage of total hernias, leading the author to the conclusion that strangulation is more apt to occur in right-sided than in left-sided hernias. There is no case of strangulated direct inguinal hernia in his series. One case was an infantile hernia, and is the only infantile hernia which he has seen. One case was complicated with an undescended testicle. The ages of the patients varied from six weeks to seventy-seven years. There were 6 fatal cases, all above forty-one years of age.

The site of the constriction is often impossible to determine. In some cases the entire wall of the canal makes constriction. In 3 cases it was at the external ring, in 7 cases at the internal ring, and in 8 cases it could not be definitely determined. The contents of the sac varied greatly, but in 19 of the cases it was the small intestine alone; in 11 cases blood-clots or bloody fluid was contained in the sac. The contents of the sac were gangrenous in 9 cases; in these the duration of strangulation was from one to thirteen days, but in 1 case only four hours.

The principal symptoms were pain and vomiting. The pain was usually sickening, and lasted until constriction was relieved or gangrene set in. The pain was at times remote from the seat of the hernia. In 4 cases, which had all existed a long time, stercoraceous vomiting occurred. The pulse and temperature were found to be unreliable from a diagnostic point of view. In carrying out treatment, the dangers of taxis were explained to the patient in each case, and it was not used unless the patient insisted upon it.

In all but three of his cases the author not only relieved the strangulation but proceeded with some form of operation for radical cure. In each case he examined the contents of the sac to determine the injury sustained by the strangulation. If the intestine was of doubtful vitality he kept it wet fifteen to thirty minutes with cloths saturated with normal salt solution. If the circulation was restored the bowel was returned to the peritoneal cavity, otherwise resection was performed. In case there were only a few small areas of gangrene, these were treated by turning them in with sutures, or by telescoping the bowel in such a way as to cover and reënforce the damaged part.

Because of its lower mortality resection is to be preferred to the formation of an artificial anus. The radical results of operation for strangulated hernia are satisfactory.

FRACTURED FEMUR—AMBULANT TREATMENT.

KOFMANN (*Centralblatt für Chirurgie*, No. 49, 1904) describes a dressing which enables patients with fracture of the femur to walk about during the healing. The dressing, which resembles Lorenz's cast for hip disease, consists of a plaster-of-Paris bandage, which must be applied under anesthesia, and which reaches from the iliac crests to the knee, supporting a walking stirrup which prevents the foot from touching the ground. A high sole must be worn on the opposite foot, and the author keeps sandals on hand for this purpose. While the patient is standing, the weight of the leg is sufficient for extension; but when reclining extension is required. The bandage should be left in position five to six weeks. The author has been using this method with excellent results for over two years.

TUBERCULAR ASCITES—TREATMENT.

In cases of tubercular peritonitis, SCHOMANN (*Centralblatt für Chirurgie*, No. 49, 1904) punctures the abdomen with a large cannula, and after drawing off all the fluid possible injects an emulsion of iodoform in glycerin, beginning with 1 to 2 cubic centimeters of a one-per-cent emulsion, and slowly increasing the concentration and dose, giving an injection every four to eight days. So far he has treated seven cases by this method, with relief of symptoms after three or four injections, and complete cure in from three to ten weeks. It causes no disagreeable symptoms and avoids all the dangers of laparotomy.

STERILIZATION OF THE SKIN.

In the *Deutsche Zeitschrift für Chirurgie* for December, 1904, KLEMM, as the result of an exhaustive study of current literature and laboratory research, announces as his conclusions that infection of a wound through the air is a negligible danger, and that infection of the hands of the operator and his assistants can, by proper methods, be rendered so unlikely that this also can scarcely be considered.

He advises for sterilization of the hands the following process: Softening of the skin in hot soap-suds, thorough rubbing in of soft soap, washing off all the soft soap under a hot-water douche, subsequently brushing the hands thoroughly, after which they are dried on a rough sterile cloth, freeing from fat by means of sulphuric ether, brushing with a sublimate solution, and then rinsing in a 70-per-cent alcohol solution. He acknowledges that there appears to be no way of preparing the skin by which infection may be surely avoided.

LARGE POINTED BODIES IN THE ESOPHAGUS—TREATMENT.

KRAMER (*Centralblatt für Chirurgie*, No. 49, 1904) reports two cases in which, after failure to remove a foreign body wedged in the esophagus, he cut down on the body, and was able to turn it so that it could be removed through the mouth without opening the esophagus itself. He says he finds no mention of this method in literature. It may often save the necessity of esophagotomy.

CARCINOMATOUS STOMACHS—RESECTION.

In *Arch. f. klin. Chir.*, lvii, 229, KEL-
LING details results based on thirty-two
operations on cancer of the stomach. He
believes that every tumor should be re-
moved, and does not consider either
inanition, anemia, edema of the feet,
bronchitis, or adhesions or large size of
tumors, the last two of which may be
deceptive, as contraindications. On the
other hand extreme old age is a contrain-
dication, as are also ascites, jaundice,
signs of cancer elsewhere, and metastases
in the skin and rectum and esophagus
(dysphagia). In certain cases of arterio-
sclerosis with pancreatic cyst there may
be symptoms exactly resembling gastric
cancer, even to hematemesis. If preg-
nancy exists this should be ended before
operation. It is never possible to say
whether a case is operable without in-
spection, and therefore exploratory
laparotomy should be performed in all
doubtful cases. It is noteworthy that
those cases with free hydrochloric acid
give the best results, that those with free
lactic acid are next, and that those in
whom the gastric contents are not acid
give by far the worst results.

The operation is performed as follows:
After two days spent in preparation, in-
cluding washing the stomach with weak
hydrochloric acid, the abdomen is pre-
pared as usual and a long incision made
in the middle line, through which the
stomach, colon, and omentum are drawn.
Then the surgeon carefully examines the
liver and gall-bladder, the smaller curva-
ture and esophagus and diaphragm, the
mesentery and mesocolon with their
lymph glands, and finally the large ves-
sels and their principal branches. When
the tumor seems adherent posteriorly, an
incision should be made through the
lesser omentum, and the posterior wall
of the stomach, the pancreas, and the up-
per part of the aorta examined. If it is
possible to remove all cancerous tissue the
resection should be made, but if the liver,
the large vessels, the head of the pan-
creas, etc., are involved, it is better to
close the abdomen or perform gastro-
enterostomy. If only the pylorus is in-
volved, this may be resected in spite of
metastases in the liver. If resection is
decided on, it should be performed by

Kocher's method, or if this is impossible
by Billroth's second method. The
omentum with its lymph glands is re-
moved before the stomach is opened if it
is involved, otherwise it is turned up and
sewed over the anastomosis. The wound
is closed except for a small opening
through which a cylinder is passed into
the field of operation, which is emptied
by suction at frequent intervals. After
large or total resections the foot of the
bed is kept raised for three days, the
stomach is kept empty by suction on a
tube passed through the nose, and the pa-
tient is nourished by enema. Hemor-
rhage should be treated by subcutaneous
injection of ergot. Shock is quite com-
mon after large operations. A table of
statistics is appended, which shows that
of the thirty-two cases ten died within a
month of the operation, twelve within
two years, and four between two and
three years. Six are still living after
periods varying from one month to two
years. None of his cases have passed the
three-year period without recurrence.

FRACTURE OF THE SKULL IN THE NEW- BORN.

DUCARRE (*Annales de Chirurgie et
d'Orthopedie*, xvii, p. 334) reports three
cases of fracture in the frontoparietal
region, occurring during forceps deliv-
ery. Two of the cases exhibited facial
paralysis, also a gutter-like depression.
All were treated by incision over the de-
pressed area, and by reposition of the
edges. Two of the cases recovered per-
fectly; the other died from unknown
causes.

The author calls attention to the neces-
sity for especial care in raising the frag-
ments on account of the delicacy of the
skull, and also to a crackling sound when
the bone returns to its normal level.

RECTAL PROLAPSE—PATHOGENESIS AND RADICAL OPERATION.

Large prolapses of the rectum are con-
sidered by WENZEL (*Deutsche Zeitschrift
für Chirurgie*, Bd. lxxvi) to be really
hernias due to relaxation of the pelvic
floor, congenital overdepth of Douglas's
cul-de-sac, and excessive pressure in def-
ecation.

Operation must do away with the sac and improve the muscular support.

Bier proposes cutting between the skin and mucous membrane. Then he would remove as much of the latter as can be drawn down through the anus. After this he sews the cut edge to the skin. This suffices for most cases, but sometimes it is necessary to add Witzel's operation. This consists in sewing the walls of the vagina and rectum together. Retroflexio uteri, if present, should be corrected.

**CHRONIC INVERSION OF THE UTERUS—
GALVANIC CURRENT TREATMENT.**

A new treatment has been devised by JAWORSKI (*Centralblatt für Gynäkologie*, No. 51, 1904) for chronic inversion, one by which he was able to replace the uterus, that had long withstood all other methods of treatment. The treatment depends upon the employment of a vaginal electrode based on that of Alexandrow.

The instrument consists of a glass cylinder perforated with several small holes at one end, and closed at the other by a perforated stopper. This stopper admits the electrode. A small glass tube which opens into this end of the cylinder permits the inflow of water. Over the perforated end of the cylinder is tied an animal bladder, and this, after insertion into the vagina, is dilated. There is thus an equal pressure on the entire vaginal surface. The other pole is placed on the abdomen. By an interrupted current the uterus is made to contract at intervals, the current strength and the introvaginal pressure being increased to the point of pain.

TIC-DOULOUREUX AND OTHER NEURALGIAS FROM INTRANASAL AND ACCESSORY SINUS PRESSURES.

A further résumé of his observations on neuralgic affections of the head is presented by SNOW in the *New York and Philadelphia Medical Journal* of January 14, 1905.

In the twenty chronic cases he has observed and treated he has seen none that came from dental caries or pressure on the nerve trunks, or that required excision of the nerve for relief. Each one had well marked intranasal pressure or a

collection within some of the accessory sinuses, more frequently the latter.

The acute form frequently accompanies a cold with sinus accumulation, and passes away with abatement of the inflammation or by securing proper nasal drainage.

The subacute form may present an equal degree of pain, but does not clear up with the removal of nasal obstruction; it starts anew upon slight provocation, showing that a proper outlet must be made from an affected sinus, or that some nasal pressure demands relief.

With the chronic cases any or all internal sinus morbid states, from pus, granulations, and polyps to diseased bone, may be expected, and in these chronic cases a most patient, thorough clearing out is the only hope. Local sprays or systemic remedies aid only as they reduce congestion of nasal membranes, prevent bone softening, or improve the general health.

It would seem that a pain shooting from the bridge of the nose outward and upward indicates an involvement of the anterior ethmoids. A deeper and more intense pain under or behind the eye, and sometimes apparently in the ear or temple, points to the middle and posterior ethmoids; while a still deeper, splitting pain, radiating outward from the center, sometimes reflected around the anterior third of the lower jaw, is relieved by opening the sphenoid. Accumulations within the maxillary antrum are diagnosed by the localized pain, with sometimes intense muscular tremor and successions of spasms, shaking the head from side to side.

Another class of neuralgias, characterized by steady pains reflected to some portion of the head instead of to the face, commonly known as migraine or sick-headache, often arise from nasal pressure.

Incontrovertible proofs have been brought forth recently of the nasal origin. While some have probably been disappointed that the removal of a septal spur, deviation, or enlarged turbinate (middle) did not clear up all the trouble, it should not be forgotten that even after such removals there can still remain a very sensitive state of the membrane. This may come from exposures, constipation, clogged liver, overeating, autoin-

toxication, etc., any or all of them sufficient to cause enough intranasal pressure to bring on again a neuralgic attack.

It is quite probable that a large majority of all headaches depend upon an intermediate nasal pressure. This pressure should of course be found and removed.

That many cases of tic-douloureux arise from intranasal and sinus pressures is without question. The statistics are not definite, but it appears that 80 per cent would be a modest estimate. In any event there is good cause for suspecting and removing either intranasal or sinus pressure in all cases of facial or cranial neuralgia.

MENOPAUSE—TREATMENT OF HEMORRHAGE.

QUEISNER (*Centralblatt für Gynäkologie*, No. 51, 1904) has treated two cases of severe climacteric bleeding, in which less radical measures had failed, by destroying the entire uterine mucous membrane with the Paquelin cautery. It was found necessary to split the cervix down to the fornix to reach the deeper parts of the womb. Recovery was uneventful, and relief was complete.

HERNIA IN CHILDREN—TREATMENT.

The first point that COLEY (*Journal of the American Medical Association*, Jan. 14, 1905) considers when the hernia appears in a child is whether or not the treatment shall be mechanical or operative.

The treatment with a truss should always be the method of choice in children under the age of four, except, of course, in cases where operation is absolutely indicated. Two-thirds will thus be cured, yet in after years a considerable percentage will relapse. Beyond the age of four, a cure can be accomplished in a fair proportion with a truss, provided the truss is properly fitted and the child kept under the care of the surgeon for not less than two years.

A truss cannot be applied too early. As soon as the rupture has been observed in the infant the truss should be fitted, to be worn night and day.

Umbilical hernia, which generally

develops during the first year, can in the majority of cases be cured mechanically. Operation is seldom indicated. One of the best methods of treatment in these cases is by means of a small wooden button mold, covered with rubber plaster and placed over the opening. This pad is held in place by a circular strap of rubber plaster two inches wide, entirely surrounding the abdomen. Care should be taken not to cause any appreciable constriction. This should be changed every week or ten days. In rare cases with very large opening, the hernia may be found to persist despite careful treatment. In these cases operation should be performed. The method of excision of the umbilicus, including the hernial sac, with careful suture in three layers, with or without overlapping the fascia, will almost always result in a permanent cure.

Epigastric herniæ are not very rare in children, and if the opening is large enough to admit the tip of the index-finger an operation will probably be needed to effect a cure. They do not tend to spontaneous cure, as is generally the case in umbilical hernia in children.

From 1891 to 1904 Coley has performed 825 operations for the radical cure of hernia in children under fourteen, with but one death, and that due to ether pneumonia. Four of these were for umbilical hernia, four for ventral, two for epigastric, and 25 for femoral. In a total of 1330 operations for the radical cure of inguinal and femoral hernia, including adults, only two deaths occurred, and 12 relapses. In the 25 cases of femoral hernia in children there has not been a single relapse.

The method of operation for femoral hernia in children has been in every case the purse-string suture, with kangaroo tendon. The technique requires, first, thoroughly freeing the sac wall beyond the neck; then ligation of the sac and closure of the canal by means of a purse-string suture of chromicized kangaroo tendon. The suture is introduced through Poupart's ligament or the inner portion of the roof of the canal, or crural arch, from whence it passes downward into the pectineal muscle or floor of the canal, outward through the fascia lata overlying the femoral vein, and upward through Poupart's ligament or roof of

the canal, emerging about three-fourths of an inch from the point of introduction. On tying the suture the floor of the canal is brought into apposition with the roof, and the femoral opening is completely obliterated. The superficial fascia may then be closed with catgut or fine tendon, and the skin either with catgut or silk. This method is probably superior to Bassini's, as out of 82 operations for femoral hernia within the last fourteen years, 66 were performed by this method without a single relapse; in 16 cases operated on by the Bassini method there was one relapse.

Where there is a complication, as an associated undescended testis, treatment with the truss is most unsatisfactory. Bevan advises operation in most cases, even in young children. Coley now operates upon those who have not yet arrived at the age of ten or twelve, for if the testis does descend into the scrotum the hernia as a rule persists, and operation is finally necessary.

The Bassini operation has been employed in most of these cases, but a little gain in the length of the cord is secured if it is not transplanted, and as the results are so nearly equal it is well to omit transplantation in such cases and let the cord emerge at the lower angle of the wound. By freeing the cord very high up and by removing some of the veins, if necessary, the testis can in most cases be brought into the scrotum. If the testis is to remain permanently in the scrotum, it must be so thoroughly freed from the cord that it rests in the scrotum without tension, otherwise it will finally retract to the external ring or into the canal. The hernia, also, can certainly be cured without castration, as shown by Coley's statistics, and in no case has the hernia relapsed.

A condition comparatively rare in children is strangulated hernia, but Coley has operated on thirteen cases between the ages of thirteen days and fourteen years. In every one of the cases the strangulation was due to the tense fascia of the external ring, and not to the neck of the sac. The operation followed was precisely the same as that for radical cure of non-strangulated cases, the skin incision being made, beginning on a level with the anterior superior spine. There has never been any difficulty about the

reduction of the strangulated loop of bowel as soon as the tense fascia of the external ring had been severed.

EXPOSURE OF THE KIDNEY—NEW INCISION.

An incision which without opening the peritoneum gives a much larger and freer field of operation on the kidney than the usual lumbar one is described by R. GREGORIE (*Presse Médicale*, Jan. 15, 1905). It consists of a straight cut from the costal margin to the iliac crest in the anterior axillary line, and two incisions extending forward from the ends of this. All the layers are cut through and drawn forward until the peritoneum is reached. This is easily separated from the posterior wall and the perirenal fat exposed. The incision is especially recommended for cancer, as it is easy to remove the fatty capsule and the lymph-glands and to determine the extent of infiltration.

GASTRIC DISEASE—OCCULT BLOOD IN THE STOOLS.

HEAD (*Northwestern Lancet*, Jan. 1, 1905) describes the test of Boas for occult blood in the stools of patients in gastric disease, and also gives Steele's résumé of the work done on this by Boas. The test, however, may be considered so delicate by some as to be employed with some caution and reserve. Besides, not all cases of carcinoma of the stomach are accompanied by ulceration and hemorrhage.

The patient is put on a meat-free diet for five or six days. The stools are made soft by the use of a mild laxative. Two or three grains of the feces is taken and mixed with 20 cubic centimeters of water. The fat is extracted with 20 cubic centimeters of ether. This mixture is now treated with one-third of its volume of acetic acid, and thoroughly shaken. There is added 10 cubic centimeters of ether, and shaking is again done thoroughly. The ether will rise to the top of the fluid mixture.

To 2 cubic centimeters of the ethereal extract there is added 10 drops of a fresh solution of tincture of guaiac (resin of guaiac 1, abs. alcohol 25), and there is also added 10 to 20 drops of an old ozonized oil of turpentine (pure turpen-

tine which has been exposed to the air for eight weeks).

If blood is present an intense blue color will appear in the mixture.

The utensils used must be clean and dry, and the ethereal extract must not touch the skin during the handling process. A green or greenish-blue color is not characteristic of the test.

Steele considers that occult blood in the feces or stomach contents is of the same significance as macroscopic hemorrhage, and of the same value in diagnosis. This occult blood is constantly found in cancer of the gastrointestinal tract. It is present intermittently in ulcer. It is occasionally present in organic and spastic pyloric stenosis. It is absent in acid, anacid, and subacid gastritis, hyperacidity, hypersecretion, and neuroses. Hence in deciding as to the presence of a condition the cure of which is necessarily surgical, the test may at times be of great value.

PERITONEAL DRAINAGE—DEDUCTIONS FROM EXPERIMENTS ON ANIMALS.

A number of experiments have been conducted by MURPHY (*Boston Medical and Surgical Journal*, Jan. 12, 1905) to determine the time which elapses between the introduction of the drain and the formation of walling off sufficiently strong to prevent the drainage of the peritoneal surfaces in humans not in direct approximation to the drain. The experiments were made on cats, and gauze, rubber tissue, glass tubes, and cigarette drains were used.

In summarizing the results, the gauze and cigarette drains failed to drain the general cavity after about eighteen hours, and the rubber dam and glass tubes after about the third twenty-four hours, the difference in the time representing the difference in the stimulating effect of the various materials on the peritoneum.

In all instances the omentum was the active agent in the walling off, the actual adhesions between the loops of the intestines being difficult to demonstrate. While the omentum in the cat is extremely large, it is not improbable, judging from findings at operations and autopsy, that the human omentum when large plays an equally active part.

It would seem from the experiments

that the usual drainage materials might be separated into two groups. In the group of cases in which it is desired to make a given septic area extraperitoneal as speedily as possible, the materials which are walled off within the first twenty-four hours would be indicated. Where it is necessary to drain the general septic cavity for as long a time as possible, that group of materials which is walled off only after about the third twenty-four hours should be preferred.

Theoretically, drainage would seem to be of great value in those cases in which it is desirable to make a limited septic area extraperitoneal.

HERNIA—INDICATIONS FOR OPERATION IN CHILDREN.

Avoidance of operation until the child has been walking for some time is in the opinion of BROCA (*Annales de Chirurgie et d'Orthopedie*, December, 1904) the most rational procedure. After that time spontaneous cure is less common and operation should be performed. Strangulation may occur in infants.

Operation is ordinarily easy, and reduction is never difficult unless there is a loop of large intestine in the sac, in which case reduction may be impossible without opening the latter. The sac should be removed. Operation is not more dangerous except on account of the liability to bronchopneumonia after anesthetization, and this almost always causes congestion of the lungs and some fever. Broca reports 300 cases with no recurrence and with only six deaths—four from pneumonia and two from enterocolitis. There were no cases of peritonitis.

CHLOROFORM—TOXIC EFFECT ON THE LIVER.

Nothnagel having pointed out that fatty degeneration of the liver occurs after the administration of chloroform, DOYON (*Lyon Médical*, Feb. 26, 1905) gave a dog the drug by the stomach in doses of 25 to 50 cubic centimeters daily, and examined the liver after its death, which occurred on the fourth day. He found that this organ contained about three times the normal amount of fat, and that there was considerable cellular necrosis throughout the organ.

THE CURE OF ESOPHAGOTRACHEAL FISTULAS.

VON NAVRATIL (*Deutsche Zeitschrift für Chirurgie*, lxxv, 467) after trying various methods of operation on artificially produced esophagotracheal fistulæ found that he could get them to remain closed only after he freed the thyroid gland from its attachment, but without cutting its large blood-vessels, and stitched it between the esophagus and trachea so as to cover both openings. This gland formed attachments with the surrounding tissues so rapidly that he always had a perfect result.

RADICAL OPERATION FOR EMPYEMA OF FRONTAL SINUS.

DREESMAN (*Deutsche Zeitschrift für Chirurgie*, lxxv, 432) describes a new operation for the treatment of frontal empyema in which the mucous membrane is so completely destroyed that its regeneration is impossible. The operation consists in the destruction and removal of the entire anterior bony wall of the cavity, with the exception of a small bridge of bone between the malar and the maxillary bone. The mucous membrane is completely removed, any dead bone chiseled away, and the cavity permitted to fill up with fatty tissue from the zygomatic fossa. This operation has been performed successfully on two patients.

COLON RESECTION.

The possibility of resection of large portions of the colon is insisted on by WINSELMAN (*Wiener klinische Rundschau*, Jan. 22, 1905), who states that in one case the patient had normal stools after the entire colon had been removed and the ileum united with the sigmoid. His operation consists mainly in making a lateral anastomosis between the ileum and lower colon or sigmoid before proceeding to resection, so that fecal matter does not pass over the resected ends. If radical operation is impossible on account of extension of the disease, anastomosis should be performed above and below the diseased part, and the bowel should be cut through above the tumor so that the diseased portion will drain into the rectum. This in the opinion of the author

is preferable to any form of false anus operation. He describes in detail the steps in resection of each part of the colon.

PARALYSIS OF POST-INTEROSSEOUS NERVE FROM PRESSURE OF THE SUPINATOR BREVIS.

A contribution to the study of local palsies is made by GUILLAIN and COURTELLEMONT (*Presse Médicale*, Jan. 5, 1905) in the report of a case of paralysis of the fingers from muscular pressure on the posterior interosseous nerve where it pierces the supinator brevis muscle. The patient was an orchestra leader and presented paralysis of the extensors of the fourth and fifth digits of the right hand. Treatment was of no avail until the muscle was put at rest. Brock observed a similar case after rupture of the short supinator. The affection is allied to drummer's palsy, where the thumb is usually affected.

ACUTE ABSCESS—TREATMENT BY PASSIVE CONGESTION.

The results obtained by this method have been almost incredibly good, says BIER (*Münchener medicinische Wochenschrift*, Jan. 31, 1905). Cases of purulent arthritis, suppuration of tendon sheaths, and acute abscesses and carbuncles have shown without exception almost immediate relief of pain and reduction of inflammation. The abscess either became "cold," or its contents changed to serum or were resorbed. Purulent arthritis was treated with passive motion after all pain had been relieved. He selects 15 of the 110 cases cited for brief description in the article. All cases were quickly cured, and it was only rarely necessary to open the abscess. Of the 15 cases reported, 8 were resolved, 3 were opened, and 4 were discharging when admitted.

The limitations and contraindications of this method of passive hyperemia are further discussed by Bier (*Münchener medicinische Wochenschrift*, Feb. 14, 1905). Surgeons wishing to try the method should begin with: (1) Subacute and mild infections which do not require confinement to bed; (2) beginning acute purulent inflammations; (3) acute and subacute inflammation and suppuration of joints; (4) later, when skill

and judgment are acquired, acute osteomyelitis, tenosynovitis, and all abscesses may be treated. In cases where gangrene threatens or the limb is already unusually congested, or when the limb must be kept in an unnatural position, e.g. the shoulder, the bandage should be left on only for a short time. The bandage must not be tight enough to cause discomfort or increase pain.

ANESTHESIA—ADMINISTRATION BY INTUBATION.

Intubation of the larynx is recommended by KUHN (*Deutsche Zeitschrift für Chirurgie*, vol. 76, No. 2) in cases where anesthetization by the mask is difficult, and in which it is desired to use as little chloroform as possible. The intubation tube is connected to a rubber tube which bears on its other end a funnel covered with gauze, on which the anesthetic is dropped. The main advantages are absolute control of the amount of anesthetic and depth of anesthesia and relief from the danger of swallowing blood, and interrupting anesthesia in operations on the face, nose, and mouth.

A CASE OF ACUTE HEMORRHAGIC PANCREATITIS; OPERATION; RECOVERY.

JONES (*Lancet*, Feb. 18, 1905) reports the case of a married woman, aged twenty-six, admitted to the hospital with signs of intestinal obstruction. Her previous health had been good, with the exception of constipation. This had been worse during the last year, as a rule her bowels not having been moved more than once in one or two weeks. Early in the morning of the day before admission, while turning in bed, she was seized with severe pain in the abdomen. Constipation was absolute, and during the day twelve enemata were given without result.

Forty-six hours after the onset she was found with an anxious expression, furred tongue, distended abdomen, pain and localized swelling in the epigastrium, pulse 128, temperature 96.2°.

A middle-line incision was made above the umbilicus, and as soon as the abdomen was opened there issued a large quantity of bright blood mixed with

serum. Fatty necrosis was present at the foramen of Winslow. The pancreas was found to be three times its normal size, discolored, edematous, and hemorrhagic in places. There was no bleeding from the organ at the time of operation. After packing around the pancreas a longitudinal incision was made in the organ. No stone or abscess was found, but there appeared to be a dilated space, and this was packed with sterile gauze. This arrested the hemorrhage. The end of the gauze packing was brought out of the abdominal wound, and this was closed. The packing was removed in thirty-six hours. The patient made an uninterrupted recovery, leaving the hospital ten weeks after admission.

BLADDER OPERATIONS—DEGREE OF ANESTHESIA REQUIRED.

The wall of the bladder is much more sensitive to increased tension than to contact of foreign bodies, according to GUYON (*Annales des Maladies des Organes Génito-urinaires*, Feb. 1, 1905) and all parts of its wall are equally sensitive. In diseased conditions the sensibility to tension is always increased more than is that to contact. Therefore in operations anesthesia should be just deep enough to dull sensation to contact, avoiding too great tension. The first stage of chloroform anesthesia, where the patient can still move a little, is enough for this purpose.

LUMBAR PUNCTURE: ITS VALUE IN DIAGNOSIS AND TREATMENT.

COOK (*New York and Philadelphia Medical Journal*, Feb. 25, 1905) gives in detail the uses of lumbar puncture in diagnosis, and states that its use in therapeutics is limited. Although results have been variable it seems to be of the greatest utility in meningitis, by lessening intracranial pressure and diminishing toxemia. The author thinks it should be used as a routine in every case of cerebrospinal meningitis. It has given good results in syphilitic headaches, chronic aural catarrh, and chronic hydrocephalus. As a preliminary to the subarachnoid injection of antitetanic serum it has been useful.

STREPTOCOCCUS SERUM—CLINICAL USE.

Working with serum prepared by himself MEYER (*Berliner klinische Wochenschrift*, Feb. 20, 1905) treated a number of medical and surgical conditions. The best results were obtained in cases of acute throat affections, where its effect was very marked, and in diphtheria, where streptococcic was added to the diphtheritic serum. In some cases of endocarditis and nephritis complicating angina the effect was also very good. Puerperal sepsis is improved if the infection has not become systemic. There was little or no effect on erysipelas or scarlatina. On the whole it may be said that it does good if the infection is still localized, but it is apt to do harm if it is already systemic.

TUBERCULOSIS—TREATMENT WITH SODIUM CACODYLATE.

As this drug cannot be taken by the mouth on account of the garlicky taste, which remains constantly, LEVRAT (*Lyon Médical*, Feb. 26, 1905) proposes that the original plan of Gautier, who administered by mouth 5 centigrammes daily, be changed to the rectal injection of 30 centigrammes every five days. He has treated 200 cases in this way with good results.

SEVERE CURVATURES OF THE TIBIÆ TREATED BY MANUAL OSTEOTOMY.

OPENSHAW (*Lancet*, March 4, 1905) reports that he has thoroughly tested the use of manual osteotomy in the treatment of rachitic curvature of the tibiæ, and that he brings it to the notice of the profession as a rapid, permanent, and complete cure. He has thus treated over thirty cases. The method of operation is as follows: The leg is encased in cotton-wool and a bandage, and is so placed that it lies upon its outer side. A wedge-shaped block with its upper edge about 1 inch wide, and 4 inches long, covered with thick india-rubber, is placed under the leg transversely at the center of the curve. The operator, with one hand grasping the leg above and the other below this point, with steadily increasing pressure breaks the bones and brings the fragments into a straight line.

In a few cases the fibula is cracked first. In the majority of cases it is only bent, the tibia alone being broken. No bruising of tissues, laceration of the skin, or other bad results occur. The limb is put up in two lateral well padded wooden splints, bandaged, and the child sent home immediately upon recovering from the anesthetic.

The line of fracture is almost always transverse, and repair is rapid. By this method of fracturing the length of the bone is increased and the shortening due to fracture is overcome. The author thinks that this method is applicable to any child under ten years of age. He used it once on a child aged twelve years.

URETHRAL PLASTIC SURGERY.

REICHEL (*Deut. Zeit. f. Chir.*, lxxv, 422) believes that impassable strictures, together with old fibrous tissue surrounding them, should be excised. The defect in the mucous membrane should be filled where possible by freeing the urethra from the corpus cavernosum and drawing it together. When the defect is too large to be filled in this way, he cuts from the prepuce a triangular piece joined at one corner to the frenum; and after bending the penis on itself, stitches this to the cut ends of the canal and to the skin edges, creating thus an artificial hypospadias, which is relieved by a later operation. The scrotum must be split and the penis drawn between its halves in order to make it reach the place. This is relieved when the frenum is cut about ten days after the operation.

FOREIGN BODY IN THE BRONCHUS; REMOVAL WITH THE AID OF THE BRONCHOSCOPE.

YANKAUER (*Medical Record*, Feb. 11, 1905) was called to a ten-months-old child said to be choking. The child had taken an orange-pit into its mouth, and when an attempt was made to remove it, began to cry. The orange-pit disappeared, and the child was seized with coughing, dyspnea, and cyanosis. A laryngoscopic examination failed to discover the foreign body. Four hours after the accident an inferior tracheotomy was performed. The foreign body not being found above the tracheotomy wound, a

bronchoscope 7 millimeters in external diameter was introduced to a point near the bifurcation of the trachea. The body could be seen with one end in the right bronchus and the other against the opposite wall of the trachea. It was seized with the bronchoscopic forceps and withdrawn. Recovery was uninterrupted.

INTERNAL HEMORRHOIDS REMOVED BY EXCISION.

LAPLACE (*New York Medical Journal*, Dec. 24, 1904) describes a method of operating which is in brief as follows: The patient, prepared as usual, is placed in the left lateral position and the sphincter dilated. Each hemorrhoid is grasped at its upper and lower extremity with Kocher forceps. The hemorrhoid is cut behind the upper forceps with curved scissors for a short distance, and a continuous suture of No. 2 cumolized catgut is started with a medium-sized curved Hagedorn needle, and the edges of the wound thus drawn together. The hemorrhoid is then cut a little further and the same suture continued. This is repeated until the hemorrhoid has been entirely removed. Each hemorrhoid is dealt with in the same manner. Delicate longitudinal scars are formed.

The method is recommended because of its precision, absence of hemorrhage, safety, and simplicity. The author has used it 83 times within the past four years without any complication. No dressing is applied excepting a pad externally.

BLOODLESS PERINEAL PROSTATECTOMY UNDER LOCAL ANESTHESIA.

TINKER (*Journal of the American Medical Association*, Feb 11, 1905) says that continued catheterization is not to be recommended in prostatic hypertrophy, and that prostatectomy is generally recognized as the ideal procedure. The dangers from the operation are from general anesthesia and loss of blood in old and weakened patients. After outlining the distribution of the main nerve trunks in the perineum, he gives a concise description of the method of anesthetizing them. A solution composed of eucaine 1:1500 and adrenalin 1:20,000 is used to infiltrate the skin and superficial fascia. Then from 30 to 60 minims of

a 0.5-per-cent eucaine solution with adrenalin is injected to a depth of 1 to 2 inches in the region of the ischio-rectal fossa in front of the tuber ischii. This carries anesthesia over an area 1½ to 2 inches in diameter. The adrenalin prevents oozing from the small blood-vessels. After the infiltration has been accomplished a sound is introduced into the bladder and partially withdrawn so that the tip remains in the prostatic urethra. The further technique of the operation is that described by Young.

GUNSHOT WOUND OF THE URETER.

VAUGHAN (*American Journal of the Medical Sciences*, March, 1905) reports a case of gunshot wound of the ureter. A man was shot with a 32-caliber ball, which entered one inch to the inner side of the anterior superior spine of the right ilium just below Poupart's ligament, and lodged under the skin in the median line posteriorly. Eight days later, symptoms of peritonitis having developed, Dr. Carr made an exploratory laparotomy, but finding no injury of the abdominal viscera, closed the wound with drainage. A purulent discharge persisted, which later became clear and contained a trace of urea.

The fistula having persisted, the abdomen was opened along the outer border of the right rectus five months later. The right ureter was dilated to twice its normal size, and in attempting to free it from adhesions it was torn across at the location of the fistula. A uretero-ureteral anastomosis being impossible, the ureter was implanted into the bladder. The bladder was incised in front; and a small oblique opening was made in its posterior wall above the normal opening of the ureter. The end of the ureter was split for about one-eighth of an inch and drawn into the bladder. The flaps were then spread open and stitched to the inside of this viscus with fine silk. The ureter was also stitched to the peritoneal coat at its point of entrance into the bladder. The wound in the anterior wall and the abdominal wound were closed without drainage. The patient was discharged cured four weeks later with a full flow of urine through the natural channel.

*THE DIAGNOSIS AND TREATMENT OF
INTESTINAL PERFORATIONS IN
TYPHOID FEVER.*

HARTE (*Cleveland Medical Journal*, January, 1905), after discussing in full the symptoms and physical signs of this condition, speaks in some detail of the treatment by operation at the earliest possible moment, and carried to completion in the briefest possible space of time. The right iliac incision should be used since at least 94 per cent of perforations are found in the last two feet of ileum. Perforations should be closed with Lembert sutures of black silk placed in the long axis of the bowel. Areas of threatened perforation should be sutured in the same way. If the perforation is too large to be sutured, an omental flap should be adjusted over it or an artificial anus should be established. Excision of the bowels has proven uniformly fatal. The peritoneal cavity should be irrigated with several gallons of hot salt solution at a temperature of 110° F. The abdomen should be drained by gauze wicks. The foot of the bed should be elevated. During the operation intravenous injections of normal salt solution should be administered, and enteroclysis of a pint of the same solution should be given every three or four hours after operation.

Harte has operated on twenty-four cases, in two of which no perforation was found. Of the twenty-two cases in which perforation had occurred only four recovered, although some lived so long after operation that it might with justice be claimed that the patient had recovered from the peritoneal complications and died from the toxemia of the fever.

RENAL FISTULA AFTER NEPHROPEXY.

Having had three cases of nephropexy followed by fistula, GARDNER (*Annales d. mal. d. org. Génito-urinaires*, April 15, 1905) made a series of tests to determine the cause. He found that he had punctured the calyx and that the escaping urine had caused perinephritis and periureteritis, with obliteration of the lumen of the ureter, resulting in permanent fistula. Examination of normal kidneys showed that the calyces came within from 10 to 25 millimeters of the

surface. The middle calyx was usually closer than the others, and was generally below the middle of the kidney. In dilated kidneys they sometimes came within 6 millimeters of the surface. He warns against putting sutures in too deeply, and says the middle suture should be placed a little above the center of the organ.

A CASE OF ESOPHAGEAL POUCH SUCCESSFULLY TREATED BY EXCISION.

BARROW and CUNNING (*Lancet*, April 8, 1905) report that a woman was admitted to the hospital February, 1904, with a diagnosis of cancer of the esophagus. She had had difficulty in swallowing for eight years. During the six months previous to admission the difficulty in swallowing solid food had greatly increased. She stated that she had regurgitated undigested food as long as three days after eating it. Stooping caused regurgitation, and she made a curious noise on swallowing. There was marked emaciation, no swelling was apparent. On bilateral pressure over the esophagus just below the cricoid cartilage air could be squeezed up into the mouth. A medium-sized bougie met obstruction eight inches from the teeth and could be felt to the left of the trachea. A small bougie could be passed into the stomach. Having concluded that an esophageal diverticulum was present, Barrow passed a large esophageal tube into the pouch, made an incision 4½ inches long from the sternoclavicular joint upward along the anterior border of the sternomastoid, which was pulled outward while the sternohyoid and the sternothyroid were pulled inward, exposing the carotid sheath. The vessels were drawn outward and the trachea inward, exposing the esophagus to the left, and behind which was seen a white fibrous-coated pouch 1½ inches long. Its neck was in the lowest part of the posterior wall of the pharynx. The bougie was removed. The fibrous coat was divided around the neck of the pouch and turned back as a cuff. The mucous membrane was then ligatured and cut through and the stump of the fibrous cord stitched over it. The divided muscular coat was then sutured over the site of the neck of the pouch. The patient was fed by enema

for seven days, and was then able to swallow milk. In a fortnight she was discharged with the wound healed, and she was able to swallow any kind of food. In eight months she had gained 50 pounds.

A BACTERIOLOGICAL STUDY OF BLANK CARTRIDGES.

DOLLEY (*Journal of the American Medical Association*, Feb. 11, 1905) after calling attention to the frequency of tetanus following wounds from blank cartridges details his tests by means of cultural experiments and inoculation of animals, and announces the following conclusions:

1. *B. aerogenes capsulatus* (Welch) was present in a large proportion of the wads of the three makes of cartridges examined.

2. The wads of the Peters Company, inoculated into rats, guinea-pigs, and rabbits, produced characteristic symptoms of tetanus.

3. The powder of the three varieties of cartridges examined was negative for *B. tetani* and *B. aerogenes capsulatus*.

4. Efforts at isolation of *B. tetani* from the wads have so far been unsuccessful.

5. There is abundant evidence, from clinical observation and animal experiments, that the wads of certain blank cartridges contain *B. tetani*. Dr. Welch considers it diagnostic to see an animal in convulsions.

QUADRICEPS TENDON RUPTURE; OPERATIVE TREATMENT.

Suture with silver wire is recommended by QUENU and DUVAL (*Revue de Chirurgie*, Feb. 10, 1905) in all cases of rupture of the quadriceps tendon above the patella.

They point out that certain persons show a tendency to rupture of this tendon and fracture of the patella, and that certain diseases (rheumatism, gout, tabes) predispose to the accident.

At operation the ends of the tendon are found drawn into the fibrous capsule, thus preventing good union. The joint is usually opened and filled with a bloody exudate. The rupture generally involves the whole of the tendon proper, but

saves the fascia-like expansions from the vasti.

Operation should not be performed until a day or two afterward, so as to permit more perfect cleansing of the skin, as the joint must be opened. The incision should be transverse and on a level with the rupture. The joint should be opened and washed out and the edges of the tendon trimmed. If the rupture is more than two centimeters above the patella it is sufficient to merely sew the two ends together, but if nearer than this the patella should be bored through transversely one centimeter from its upper border, and a thick silver wire passed through this and through the tendon. The fibrous sheath should be united by fine sutures and the wound closed without drainage.

The patient may be allowed to walk after three weeks, but extension on a splint should be kept up a week longer.

HEMORRHOIDS.

HORSLEY (*Clinical Journal*, Feb. 15, 1905) after having practiced Whitehead's operation for many years, and knowing its value, recommends it unqualifiedly, and strenuously opposes the continued performance of ligature and cautery as unscientific in principle and barbarous in execution. In excising the pile-bearing area he removes a quadrant at a time in order to have as clean an operation as possible. The strip of mucous membrane which he removes is 2 to 3 centimeters in width. He says that contraction of the anus occurs only when the sphincter is injured or suppuration occurs, and that it is easy to operate with sufficient care and asepsis to prevent either of these accidents. To prepare the patient for operation the bowel should be washed out by boric acid enemas night and morning for a week before operation, and each night, after the enema has been evacuated, a 5-grain iodoform suppository should be introduced. The necessary purgation should be completed two days prior to operation, and the diet of the previous forty-eight hours should be restricted. After the operation a morphine and iodoform suppository should be inserted. The lines of suture are dressed daily with warm

compresses and double cyanide gauze wrung out of hot mercurial or carbolic lotion. The most important point in the after-treatment is adequate provision against the passage of feces over the line of sutures. To accomplish this, on the third day three or four drachms of sterilized soft bismuth ointment is injected into the bowel and some of it applied to the anus. Later a large injection of olive oil is administered. This should be repeated daily. He condemns the practice of locking up the bowels by opium.

UNDESCENDED TESTICLE—TREATMENT
BY ELASTIC EXTENSION.

The testicle is brought into its proper position by the new operation of LANZ (*Centralblatt für Chirurgie*, April 22, 1905), which he describes as follows: The anterior wall of the hernial canal is split longitudinally, the vaginal process opened, and the testis brought to the internal ring. The vaginal process is treated as a hernial sac, the testis is drawn down as far as possible, and the canal closed by Bassini's method. The scrotal half is then stretched by an artery forceps, the end of which is cut down upon by a small buttonhole, through which a heavy catgut is passed. This thread is passed through the tunica albuginea and the testis drawn down into the scrotum. The opening is closed by one suture, and the catgut attached to a rubber band arranged to make constant traction.

ANASTOMOSIS OF THE ESOPHAGUS.

A new method for anastomosis after partial resection of the esophagus is described by SAUERBRUCH (*Centralblatt für Chirurgie*, Jan. 28, 1905). The author lays particular stress on three points, viz.: (1) Perfect asepsis; (2) use of the Murphy button instead of sutures; and (3) employment of substances which cause rapid adhesions between the serous coats, e.g., Lugol's solution. The thoracic part of the patient's body is enclosed during the operation in a pneumatic chamber in which a negative pressure of 10 to 12 millimeters of mercury is maintained.

The anastomosis between the stom-

ach and esophagus is made as follows: An incision is made along the fifth intercostal space down to the pleura. This is carefully divided in the whole extent of the incision and held open by the Mikulicz costal separator. The lung is pushed away from the chest wall by tampons until the aorta and esophagus are exposed. The latter is seized immediately above the diaphragm with toothed forceps and drawn upward until the abdominal part of the esophagus, covered by a double serous layer, pleura, and peritoneum, is seen. Here the pleura and then the peritoneum are incised, and thus the peritoneal cavity is opened. This opening is enlarged and the stomach, particularly the fundus, drawn as far into the thorax as necessary. Care is required not to injure the vagi or disturb too much the attachment of the esophagus. An assistant outside the pneumatic chamber then forces the female part of a Murphy button down the esophagus by means of a sound into the stomach. It is now seized through the stomach wall by the operator and brought into the fundus. The button having been brought to a suitable spot, as small an incision as possible is made over it. The end of the button is forced through the incision in the stomach wall, which holds it tightly, making circular suture unnecessary. The male part of the button is now pushed down the esophagus as before until that point in the esophagus is reached which it is desired to unite with the stomach, and its end is forced through a small incision on the anterior surface of the esophagus. The stomach and esophageal portions of the button are then brought together, taking care not to move the esophagus nor touch the vagi.

The diaphragm is then sutured after holding it in contact with the stomach for a short time to see that no traction is exerted on it during inspiration. If tension is suspected more of the stomach must be drawn into the pleural cavity, until the excursion of the diaphragm no longer moves the fundus. The diaphragm is then fastened to the stomach by eight to ten sutures, which include the entire musculature of the diaphragm and the serous and muscular coats of the stomach. Then the seat of anastomosis, the edge of the diaphragm, and the pleura opposite

the stomach are painted with Lugol's solution, the pleural cavity washed with salt solution, and the intercostal incision closed by three layers of sutures.

The greatest danger seems to be giving way of the gastroduaphragmatic suture and forcing of the entire stomach into the chest cavity, compressing the heart. If the cardia is closed the female part of the button must be inserted through an incision in the stomach.

At least half of the esophagus can be removed in this way in dogs.

If it is desired to excise part of the esophagus the operation is done as before up to the closing of the diaphragm. The vagi are then separated from the esophagus, which is clamped by an intestinal compression forceps immediately below the button, cut through, turned in, and ligated with circular suture. It is then forced from its attachments from above downward, and as much of the stomach is exposed as it is desired to resect. This is then cut through and the free margin turned in and fastened with circular suture like the lower end of the esophagus. The upper stump is sewed to the fundus for additional security, and the operation finished as above by attachment of the stomach to the diaphragm, painting with Lugol's solution and closure of the thorax.

If the tumor is very small and just at the junction of the stomach and esophagus, it is perhaps safer to displace the stomach as above, but instead of uniting it to the esophagus laterally to force it into the stomach like an invagination and suture it there. Then after two weeks a gastrotomy is performed and the invaginated part within the stomach resected. All the operations described have been carried out with great success on living dogs, and on the cadaver in man.

Reviews.

THE THERAPEUTICS OF MINERAL SPRINGS AND CLIMATES. By I. Burney Yeo, M.D., F.R.C.P. W. T. Keener & Company, Chicago, 1904.

This is a book which corresponds in size to a single volume of the "Manual of Medical Treatment" and the book on "Dietetics" which Professor Yeo contributed to medical literature some years

ago. The volume, as its title indicates, is divided into two parts, the first being devoted to a study of mineral springs and the second to the subject of climate. The number of pages in the volume, namely, 755, is about equally divided between these two subjects, but no description is given of the mineral springs or climate of the western hemisphere save two pages, in which some of the resorts of Southern California are mentioned, all the text being devoted to a consideration of European resorts, and to sea voyages. In this respect the book is by no means as satisfactory as a smaller volume by Dr. Williams which appeared a number of years ago. While to American physicians the value of the book is materially modified by the scanty references to American resorts, it nevertheless will prove an exceedingly valuable reference to those physicians who have patients sufficiently well-to-do to be able to go to European health resorts. A useful method, which is pursued throughout the text, is the printing of the names of the more important springs in heavy type, so that they stand out as compared to the unimportant ones. Thus, amongst the springs in Germany and Austria we find Baden-Baden, Homburg, Kissingen, and Nauheim in heavy letters, and in France Vichy and Vals. In a number of instances where the springs are comparatively unimportant information is given concerning them in small type with the object of saving space. A valuable chapter is contained in Section C, which is devoted to the application of mineral water and baths in the alleviation and cure of disease. As an accurate and practical handbook upon this subject we can cordially commend the work to our readers.

PROGRESSIVE MEDICINE. Edited by H. A. Hare, M.D., assisted by H. R. M. Landis, M.D. Volume II, June, 1905. Lea Brothers & Company, Philadelphia and New York, 1905.

This quarterly digest of advances, discoveries, and improvements in the medical and surgical sciences contains in this volume articles upon "Hernia," by Dr. William B. Coley; "The Surgery of the Abdomen, Exclusive of Hernia," by Edward Milton Foote, of New York; one upon "Gynecology," by John G. Clark, of Philadelphia; another upon "Diseases of the Blood, Dietetic and Metabolic Dis-

eases, of the Spleen, Thyroid Glands and Lymphatic Glands," by Dr. Alfred Stengel, of Philadelphia; and lastly, a contribution reviewing ophthalmological literature during the past year, by Dr. Edward Jackson, of Denver. The very wide experience of Dr. Coley in connection with cases of hernia qualifies him to act as a capable and accurate critic of all the literature upon this subject, and he not only gives us a résumé of the opinions of other surgeons, but amongst the other personal information states the results which have been attained in 1500 operations for the radical cure of hernia in children performed at the Hospital for the Ruptured and Crippled by Dr. William T. Bull and himself. It is interesting to note that out of 53,686 patients treated in the out-patient department of this hospital, 50,961 showed inguinal hernia and 2725 femoral hernia, and almost one-third of this number were in children below the age of fourteen.

The article upon the "Surgery of the Abdomen," aside from hernia, by Dr. Foote, is copiously illustrated and thoroughly represents the literature of abdominal surgery for the past twelve months.

The article by Clark, on "Gynecology," also provides the practitioner with a useful summary of gynecological literature during the same period. In passing it is interesting to note that whereas twenty years ago the use of the uterine sound in diagnosis was exceedingly common, it fell into well-deserved disrepute with the advent of antiseptic surgery, but is now coming into use again in the hands of careful men, who take care that the sound is not contaminated by vulvar or vaginal discharges before it is passed into the uterine cavity. Interesting information is also given in regard to the relation of gonorrhea to marriage.

The article of Dr. Stengel, as its title indicates, is one of the most difficult for condensation that the volume contains, as the field is so wide and the studies in it are so numerous, although in many instances they cannot as yet be conclusive. Practical methods are given for the examination of the blood, and a careful discussion of the results of such examinations is carried on.

The article on "Ophthalmology" does not profess to be a complete résumé suit-

able for a specialist in this branch of medical practice, but rather a story which will be of service to the general practitioner who may be called upon to treat ocular injuries and disorders.

MATERIA MEDICA, THERAPEUTICS, AND PHARMACOGNOSY. By Finley Ellingwood, M.D., with a Condensed Consideration of Pharmacy and Pharmacognosy by John Uri Lloyd, Ph.M., Ph.L. Fifth Edition, Thoroughly Revised and Greatly Enlarged. The Chicago Medical Science Publishing Company, Chicago, 1905.

Dr. Ellingwood, as a professor of materia medica in Bennett Medical College of Chicago, may be considered as by far the leading therapist in the so-called eclectic school of medicine. In his preface to the present volume he claims that the eclectic school was the first to give attention to alkaloids, resinoids, and glucosides. The opening pages, which discuss individual drugs, are devoted to a consideration of agents "commonly used in the control of fevers," which are held by the author to be agents acting on the nervous system and to be sedatives and depressants. He believes that gelsemium, aconite, veratrum, and bryonia are first in importance in the treatment of fevers, and places these drugs, with rhus toxicodendron, ahead of such antipyretics as antipyrin, phenacetine, acetanilid, and exalgine. Under the heading of "drugs commonly used in the control of pain" we find opium, morphine, codeine, coniine, and cannabis indica. Under the chapter devoted to "agents used to induce sleep or control spasm" we are surprised to find that passiflora, hyoscyamus, and piscidia precede chloral, sulphonal, and trional. Whether it is the intention of the author in this arrangement to indicate that the first three are of the greatest importance we do not know. The attempt to follow a therapeutic classification throughout the volume is open to the same objections as have been met with in a host of other works. To find glycerin among the agents which act on the stomach seems odd, and to have hemlock spruce discussed under Gastrointestinal Astringents also seems out of place. Under the head of agents used in the control of hemorrhage we are somewhat surprised to find no reference to adrenalin and ergot.

It must not be understood, however, from the criticisms which have been so

far made that the book will not prove of value to the general practitioner. While it is by no means an essay upon scientific pharmacology, it contains on almost every page practical information in regard to the clinical application of remedial measures, and not only mentions those drugs which are commonly employed by regular practitioners, but a host of others which are useful but more commonly used by so-called eclectic practitioners. It is a book which we are glad to have in our library, and we have no doubt that the present edition will prove as popular as its predecessors.

ADDRESSES AND OTHER PAPERS. By William Williams Keen, M.D., LL.D., F.R.C.S. W. B. Saunders & Company, Philadelphia, 1905. Price, \$3.75.

This is a volume of 400 pages containing occasional addresses and other papers, which the author publishes with the hope that they may prove useful to the profession and to the public. As with most compilations of this character, the range of subjects is a wide one. The opening article is on the early history of practical anatomy; the second is upon the history of the Philadelphia School of Anatomy and its relation to medical teaching; the third upon our recent debts to vivisection; the fourth upon the recent progress in surgery. Perhaps one of the most striking titles is "The Cheerfulness of Death," and one of the most noteworthy is upon duties of trustees of public institutions. The closing article is upon surgical reminiscences of the Civil War. To Dr. Keen's friends and students, of which there are a host, this book is of double interest in containing valuable information, and in bearing the personal imprint of the author upon every page.

A MANUAL OF PRACTICAL HYGIENE FOR STUDENTS, PHYSICIANS, AND MEDICAL OFFICERS. By Charles Harrington, M.D. Third Edition, Revised and Enlarged. Lea Brothers & Company, Philadelphia and New York, 1905.

When the first edition of Dr. Harrington's work upon Hygiene appeared a few years ago, we highly commended it in the pages of the *THERAPEUTIC GAZETTE* as a complete, accurate, and readable publication upon this important subject. The present edition contains nineteen chapters. The most important of these deal

with foods, with air, soil, and water. There are also important chapters upon personal hygiene, tropical hygiene, infection and immunity, and special chapters upon military and naval hygiene and the hygiene of occupations. A very important chapter, in view of the many researches which have been made during the last few years, is that upon the relation of insects to human diseases. Throughout the book the author shows, by a host of references, his full acquaintance with the literature of his subject, and he has succeeded most admirably in eliminating a mass of material which in many other volumes proves cumbersome, and in including a large amount of information which can be practically employed by officers of health. Without doubt Harrington's Hygiene ranks as the best condensed work on this subject in the English language.

A MANUAL OF MIDWIFERY FOR STUDENTS AND PRACTITIONERS. By Henry Jellett, B.A., M.D. William Wood & Co., New York, 1905.

This is a comparatively small work upon midwifery by an obstetrician of large experience, and contains nine plates and 467 illustrations in the text. In the preparation of the manuscript the author has had the assistance of Dr. W. R. Dawson, Dr. H. C. Drury, Dr. Moorhead, and Dr. Rowlette. The book is a correct, accurate presentation of the subject as it exists at the present time, but it does not approach in thoroughness or in its appearance several of the books on obstetrics by American authors which are now popular with the profession, for in no field of medical literature has there appeared during the last few years such a group of excellent treatises as on the subject of obstetrics. To those who desire a ready manual rather than an exhaustive and comprehensive volume, the present publication can be cordially recommended, and for the purpose of students of medicine it has a large number of advantages.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume IV. The Johns Hopkins Press, Baltimore, 1904.

With the earlier volumes of these series many of our readers are doubtless acquainted. The present volume of nearly 600 pages contains eight contributions,

covering a wide range of subjects. The first is upon the connective tissues of the salivary glands and pancreas, by Dr. Flint; the second, a discussion of a new instrument for determining the minimum and maximum blood-pressure in man, by Dr. Erlanger; the third upon metabolism during pregnancy, labor, and the puerperium. Following these articles there are others upon an experimental study of blood-pressure, upon typhoid meningitis, upon the pathological anatomy of meningitis due to the bacillus typhosus, a comparative study of white and negro pelvises, and a final article upon tuberculosis of the kidneys. Each one of them is an exhaustive consideration of the subject involved, and presents not only the results of original work, but also a careful summarization of the literature of the subject in hand. Much credit is due to the authors for their papers and to the Johns Hopkins Press for the admirable way in which they have been presented.

SURGICAL DIAGNOSIS. *A Manual for Practitioners of Medicine and Surgery.* By Otto G. T. Kiliani, M.D. Illustrated. Wm. Wood & Co., New York, 1905.

This excellent and greatly needed work is modeled to an extent after the admirable book of Albert, in that it takes up certain surgical affections in place of covering the entire ground. Kiliani calls attention to the contradiction in the term surgical diagnosis, since surgery has to do only with treatment, and notes that since the diagnosis is usually made by the general practitioner, upon him is placed the question of deciding as to when surgical interference becomes advisable. Errors are often committed because he lacks the experience as a diagnostician acquired by the surgeon in his daily work.

In this book the author has consistently endeavored to give the diagnostic symptoms peculiar to diseases and to indicate a method by which these symptoms may be observed. The book is essentially designed for the general practitioner, and is likely to serve an extremely useful purpose in calling his attention to conditions remedial in their early stages, but often past surgical help when they are referred for operative intervention. There are numerous illustrations, and particularly admirable ones dependent upon *x-ray* examination.

In considering the individual diagnostic points each surgeon will find something to criticize, yet all must acknowledge the good judgment which is the dominant feature of the work. It is also true that operations are often indicated before positive diagnosis is possible. This is absolutely true of all accessible cancers, and the routine text-book teaching which leads the practitioner to wait for pain, adherence of the skin, lymphatic enlargement, and cachexia before formulating the diagnosis, for instance, in mammary carcinoma, has cost thousands of lives.

The book terminates with a series of ingenious and serviceable tables giving the identical symptoms found in various diseases; the differential diagnosis of various forms of coma, the differential diagnosis of trembling, and a list of diseases, symptoms, syndromes, and laws designated by proper names; though it may come as a novelty to neurologists that the Kernig-Netter symptom is expressed by "inability to separate the knees when seated."

Correspondence.

LONDON LETTER.

By GEORGE F. STILL, M.D., F.R.C.P.

Influenza is a well-worn topic, but it has recently been under discussion again at some of the London medical societies, and it may be useful to summarize the most interesting points which have arisen. Prof. Clifford Allbutt opened a discussion with some valuable observations on the clinical aspect of influenza; and it is satisfactory to note the evidence upon which the diagnosis is based by so distinguished an authority, for one cannot but suspect that in common parlance, both lay and medical, "influenza" is too often a cloak for ignorance. Great stress is to be laid on suddenness of onset, a feature which distinguishes influenza both from the common "cold" and from typhoid. The urine also in influenza is peculiar, in the absence of that tendency to high color and to deposit which is seen in most febrile states. Prolonged pyrexia without evidence of typhoid, and lasting perhaps two weeks or more, may mean influenza,

and in these cases there is not infrequently a little enlargement and tenderness of the spleen; a sudden onset of violent neuralgic pain in the back, limbs, or head may have the same significance, and so also may an acute otitis media. But the proof in all such cases is the presence of Pfeiffer's bacillus of influenza. Unfortunately such a method of diagnosis is not practicable in most cases, and it may be doubted whether, if bacteriological investigation were made in all the cases diagnosed as influenza, the number showing the Pfeiffer bacillus would be found to correspond even approximately with the number at present labeled "influenza." It seems much more probable that, as Dr. Bullock said at the same meeting, the term influenza represents not one disease but a whole series of infections due to various microbes; and as a matter of fact, although epidemics of catarrh are still very frequent, the bacillus of Pfeiffer, which was commonly found in the cases occurring during the epidemic in the early nineties, is now but seldom found.

Some interesting observations on the prognosis of influenza were mentioned by various speakers. Professor Allbutt, referred to the calamitous results of influenza attacking a person already affected with pulmonary tuberculosis. The empyema of influenza is also of bad prognosis; but special importance attaches to the cardiac complications: sudden cardiac failure causing death had never occurred in his experience, but various abnormalities, such as undue rapidity or extraordinary slowness of the heart's action, were not uncommon. One very important practical point he emphasized, namely, the necessity for avoiding chloroform for some time after influenza, for even if the patient does not die under the anesthetic, it is apt to embarrass the heart so much that full recovery does not occur for days, or the patient may actually die after some days from cardiac failure.

With regard to the treatment of influenza, one speaker thought that quinine is of more value than such antipyretics as salicylate of soda or phenacetine. He considered salicin in 20-grain doses preferable to the salicylate. Quinine, however, gives less satisfactory results in the cases with bronchopneumonia; in these he had found a mixture of digitalis

with ammonium chloride and nux vomica specially useful. The arterial tension was also a valuable guide in treatment, and if this was high he used nitrite of sodium or the liquor trinitrine. Professor Allbutt urged the value of rest in bed directly the influenza attacked the patient, but admitted that this is a counsel of perfection which is usually disregarded. He was also much opposed to the "feeding-up" with beef tea and chops, which produces an amount of misery and depression which would be much diminished if the nitrogenous food, such as milk, custard, and especially meat, were much reduced. Dr. F. J. Smith had a word to say for "the cup which cheers but not inebriates." He is a believer in a cup of tea and a bit of bread and butter, and if the patients liked to have these he would let them.

At the Obstetrical Society of London this month a paper was read by Dr. Boxall on mortality in childbed. He drew attention to the increased occurrence of sepsis when salufer, a mixture of silico fluorides, is used for douching in place of corrosive sublimate. The routine practice of douching just before and just after delivery, and once more on the fifth day, was mentioned as in vogue at the Lying-in Hospital. His conclusions as to the death-rate from various causes in child-birth were by no means satisfactory for the kingdom at large. It seems that while in London there has been a distinct decrease, in other parts of the country there has been little if any decrease in recent years; indeed, the death-rate from puerperal septic disease seems rather to have increased. One speaker referred to the common fault of handling various articles in the room after disinfecting the hands before making an examination; the carelessness of nurses was also mentioned; and one speaker urged that no nurse should be allowed to give a douche until she had been properly trained. The importance of cleansing and disinfecting the vulvæ of women in labor was also emphasized.

The epidemic of cerebrospinal fever in America and in some parts of Europe has attracted the attention both of the lay and the medical press to the disease recently, and alarming reports appear of scattered cases or groups of cases in London or in outlying parts; but there is no reason to

suppose that there are more than the usual number of sporadic cases which are constantly to be met with in London during the cold season of any year. As usual, when a disease becomes a topic of the day, articles dealing with it and records of cases flood the journals; and so it has been for some weeks past—one can hardly take up a newspaper or journal without finding some reference to "spotted fever" or cerebrospinal meningitis. But any physician of experience knows that in London this disease is nothing new, although it probably varies in the degree of its prevalence each winter.

An interesting event in the medical world here has been the visit of a goodly number of London consultants to Paris, where they were welcomed as guests by the medical profession of France, and were entertained with a kindness and liberality which may be taken as a significant token of the *entente cordiale*, so far at any rate as our profession of medicine is concerned. One and all came back delighted not only with the insight into French methods of hospital and laboratory work, but also with the spirit of *fraternité*, which with *liberté* and *égalité* makes up the true spirit of scientific progress, and which was shown so admirably by their hosts in Paris and at the other places visited.

Another event of the month which calls for mention is the centenary celebration of the Royal Medical and Chirurgical Society, a festivity which extended over three days, if anything so profound as the Marshall Hall address, which was delivered on this occasion by Dr. Head, can be called a festivity. As this address is likely to become a classical work, it need not be referred to in detail here; it should be read in full when published. Suffice it to say that it dealt with the differentiation of forms of sensibility, and showed that peripheral nerves contained amongst their different fibers at least two, probably three, sets of fibers conveying different forms of sensation. The banquet, which was held at the Hotel Cecil, was attended by the Prince of Wales and by a large number of the most distinguished of English scientists. On the third evening of the celebration a conversazione was held in the great buildings and the Natural History Museum at South Kensington, where stuffed giraffes and

kangaroos seemed strangely mixed with a gay crowd of doctors and their wives, promenading to the music of a band.

THE TREATMENT OF ILEOCOLITIS AND ALLIED AFFECTIONS OF CHILDREN.

To the Editor of the THERAPEUTIC GAZETTE:

SIR: The summer is again upon us, and with it children suffer from digestive troubles. We should therefore be prepared to meet such cases with the best treatment the profession can offer. With that end in view I present the following small contribution.

We often during the summer months—more than at other seasons—meet with cases of which the following description is typical: A child, male, sixteen months old, is attacked with griping, and purging of green-colored stools, with occasional vomiting, high fever, restlessness, great thirst, and anorexia. I saw the case the eighth day, at 12 M. Its temperature was 103°, and the pulse 130. There was extreme restlessness, nausea, and occasionally vomiting.

I began treatment by ordering absolute abstinence from food of any kind for at least twenty-four hours, with a liberal allowance of boiled water. I then put the child on the following treatment: Syr. rhei aromatici, from 3j to 3ij every two hours, until it produced healthy colored stools. After that I prolonged the interval between doses so as to only keep up the effect of the rhubarb. I prefer the aromatic syrup of rhubarb to any other preparation because it is tolerated by the most sensitive stomach, and the aromatics prevent griping. I also directed, if much griping or tenesmus occurred, to give 15 drops of paregoric as required. At the end of twenty-four hours the case showed some improvement, and by the end of forty-eight hours decided change for the better. The fever was nearly gone, there was less restlessness, no nausea, and the character of the stools changed to a nearly healthy appearance. On the third day of treatment convalescence was fully established.

My object in reporting the case and treatment is to call attention to this use of rhubarb, because in my hands it is by far the best treatment I have used.

J. M. ANDERSON, M.D.

FAYETTEVILLE, TENN.

—THE— Therapeutic Gazette

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Original Communications.

THE OSMIC ACID TREATMENT OF TIC-DOULOUREUX.¹

By W. WAYNE BABCOCK, M.D.,

Professor of Surgery in the Medical Department of the Temple College, and Surgeon-in-Chief to the Samaritan Hospital, Philadelphia.

Despite conflicting opinions as to the pathology of trifacial neuralgia, there is a general unanimity of opinion that relief from the tormenting pain usually is to be obtained only by interruption of sensory impulses from the periphery to the trigeminal centers. In cases of the severe type so little has been accomplished by attempts to restore the normal

function to the nerves that arrest of sensory conduction is the chief method of treatment considered. That relief is almost uniformly obtained by the positive interruption of the sensory paths suggests that pain of purely centric origin, in the form of tic at least, is rare, and not, as a rule, to be considered in the method of treatment. The tendency toward regeneration of sensory nerves after division or partial ablation, or the resumption of their function by means of nerve anastomoses, makes it difficult, however, to permanently arrest the pain. This return of the pain is usually noticed within a few weeks or months after operations upon the peripheral trunks, and occasionally seems to have occurred after what is asserted to have been a complete extirpation of the ganglion of Gasser.

¹Read before the Philadelphia County Medical Society, March 8, 1905.

The experimental and clinical evidence advanced by Spiller and Frazier to prove that regeneration never occurs after simple division of the sensory root of the ganglion has not been entirely accepted. Other experimental evidence has been brought forward to show that there may be some regeneration after division of the sensory root, and in Sherman's case it is asserted that after all of the sensory fibers of the ganglion were cut there was a return of the pain.

To the patient contemplating operative treatment, one is justified in promising some relief, usually of a temporary character, yet with trifling risk, after operations in which the peripheral nerves are divided or resected; and relief, usually complete and permanent, yet with grave operative danger, after excision of the ganglion or division of the sensory root.

Twenty-five years ago osmic acid came into use in the treatment of various forms of neuralgia. Weak solutions of the acid were injected through a hypodermic needle as close to the affected nerve as possible, and from this treatment a number of apparent cures were reported. After a more extended use the method fell into disfavor with most surgeons on account of its unreliability. It had been first adopted because of the known affinity between osmic acid and certain portions of nerve substance, and we have evidence that when in contact with a nerve it produces a necrosis that results in what is usually a permanent destruction of the portion of nerve acted upon. With such a marked destructive action, the rarity of motor paralysis after its injection in the vicinity of mixed nerves is to be wondered at, and this seems to indicate that the precise injection of the acid into the nerve trunk was much rarer than many operators believed.

This injection method is too uncertain in its technical application to permit definite conclusions to be drawn as to its value in neuralgia. About eight years ago W. H. Bennett began to inject from ten to fifteen minims of a one-per-cent solution of osmic acid directly into the nerve trunks after their exposure by a suitable incision, and obtained results that were almost uniformly favorable. Some of his cases have been free from trigeminal neuralgia for over four years after the use of this agent.

The method has been extended and popularized in this country by John B. Murphy, who has likewise obtained, in the majority of cases, results of the most gratifying type, and has experimentally sought to determine the precise action of osmic acid upon nerve trunks.

The efficacy of the injection seems to depend upon two factors: First, the thorough destruction of nerve filaments and adjacent tissues produced by the osmic acid; and secondly, the fact that the area of destruction becomes filled by a mass of scar tissue impermeable to sensory impulses. As to the secondary changes in the nerve trunks and ganglia, the evidence is somewhat conflicting and need not now be discussed. In a large percentage of cases the injection is followed by complete anesthesia and relief of the pain, which persists at least for several years. As to permanent cures, a sufficient time has not yet elapsed to warrant conclusions. In another percentage of cases the relief is only partial or temporary, yet most of these patients are improved or relieved by a second injection. From a review of the recorded cases, absence of decided improvement after the precise injection of osmic acid into the trunk of the affected nerve seems rare, but as the treatment does not prevent the formation of new nerve anastomoses, and as the operator may fail to thoroughly inject all of the involved fibers, occasional failures to obtain entire relief are not to be wondered at. While locally the acid produces a marked necrosis, if the superficial tissues are protected and the wound does not become infected the injection is not followed by the formation of an abscess. There is no danger to the general system from absorption of the acid.

The technique of the treatment is simple, yet it must be precise. An incision is made over the affected nerve trunk. This is hooked up, taking great care to include all of its fibers, and from seven to fifteen minims of a two-per-cent solution (Murphy) of osmic acid injected, the introduction being made through several different punctures into the nerve. It seems wise in many cases also to inject five or ten drops of the solution into the foramen of exit of the nerve. With the exception of the supraorbital, the branches of the fifth nerve may all be

reached through the mouth, so that the operation is not a disfiguring one. It may be done under general or local anesthesia. The sloughing which may occur about the seat of the injection when this is done through the mouth is rarely troublesome and may be of advantage, since it increases the quantity of cicatricial tissue left in the course of the affected nerve, leaving a barrier through which nerve regeneration may be difficult.

Bennett believes that in order to be effective the treatment should be applied early in the course of the disease, and Murphy's paper aroused some criticism as to the value of such a peripheral operation, especially in cases of long standing and of severe type. The final conclusions in the matter must rest upon the clinical results of the treatment. To contribute to the general reply to these criticisms, the following, a case of thirty-five years' duration, in which there had been repeated peripheral operations, and two attempts to remove the Gasserian ganglion, is submitted:

W. H. M., widower, day watchman, was born in Switzerland fifty-five years ago. The family history is negative.

Previous history: As a child his general health was good. He had whooping-cough, but not measles nor scarlet fever. When seven or eight years old his face was burned by an explosion of powder, and the resulting conjunctivitis continued for three or four years. When fifteen or sixteen years of age he had typhoid fever.

In 1865 he came to the United States, and in 1866 enlisted in the army, and while serving at Fort Churchill contracted malaria characterized by chills and fever upon alternating days. These continued for about eighteen months, but did not confine him to bed. When he had nearly recovered from malaria, and while employed as a mail carrier, he had sun-stroke, fell from his horse, and was unconscious for several hours. From this he became more susceptible to summer heat. He smokes in moderation, but denies specific disease and addiction to stimulants.

Present illness: Began in 1870 with pain in the left cheek. This was entirely relieved by drugs. In 1871 it recurred in the left cheek, temple, and side of the

head, and was continuous until 1875, when it became much more severe. Medicinal treatment gave but temporary relief. With intervals of rest he was able to continue his work. For the relief of pain increasing doses of narcotics were used. The pain was excruciating and resisted all medical measures. It was located chiefly in the region of distribution of the left infraorbital nerve. In 1886 the first operation was performed, the surgeon excising a portion of the left infraorbital nerve. This gave relief to the left side of the face, but a week later pain began in the region of the distribution of the right supraorbital nerve, and this seemed even more severe than that previously present upon the left side. A year later the pain recurred in the distribution of the left supraorbital. In 1892, after six years of suffering, with intervals of partial relief obtained by the use of drugs, he entered another hospital for resection of the right infraorbital nerve. He remained in the hospital five weeks. During this time he obtained fair relief. Two days after leaving the hospital pain of excruciating severity recurred in the region of the nerve just resected. This was more severe than he had ever before suffered. In 1893 the region of the left antrum was explored. As far as known the nerve was not resected. The patient remained in the hospital this time seven weeks, but obtained no relief. Despairing of operative relief the patient tried a multitude of drugs. In 1897 he was adjudged insane, and committed to Norristown. Relieved from the effect of drugs, his mind cleared in four weeks, but he was obliged to remain in the hospital until the required legal time of three months had expired.

In June, 1899, the right infraorbital was resected by opening the antrum, and later nearly the entire inferior dental canal was exposed and the nerve removed. For two weeks following the operation he suffered much pain. After this the pain ceased for three months, to again recur. In September, 1899, two well-known surgeons attempted to remove the right Gasserian ganglion. Such profuse hemorrhage resulted that the operation was not completed. Two days later the operation was continued, but again the hemorrhage was so free that the operation was finally abandoned

before the ganglion was removed. The patient asserts that he was unconscious for a week following the operation, and for the ensuing seven months was markedly asthenic. At the end of seven months his strength began to return, and with it the pain, which had been absent during this period. The operation was followed by loss of vision in the right eye. It is to be noted that the patient has had cataracts forming in each eye since 1885, and in 1895 he had a left iridectomy, followed by cataract extraction performed.

The pain soon again became extremely severe, and it seemed as if the suffering had never been more intense, while the left supraorbital showed involvement for the first time. During the paroxysms as much as five grains of morphine and one-half pint of whiskey are said to have been used at a single dose.

In 1902 another surgeon did two operations upon different days. The left infraorbital, supraorbital, inferior maxillary, and later the left and right inferior dental nerves were resected. To prevent regeneration, the foramina upon the left side were plugged with gold foil. The patient was in the hospital one month, and had partial relief, which lasted only seven days after leaving the hospital. He resumed his work as watchman, with great difficulty, trying to secure relief from the paroxysms of pain by the use of various drugs.

In June, 1904, he came under my observation. At this time the pain was chiefly in the regions supplied by the right trifacial, the most intense pain being in the distribution of the right inferior dental nerve. Articulation and mastication produced paroxysms of terrific pain, and he had been unable to eat solid food for six weeks. The man was fairly well developed, but poorly nourished, and his physical condition, from the use of many drugs and the very small amount of nourishment taken, was bad. This was the longest attack without an intermission that he had ever had. The pain began usually in the right inferior maxillary nerve, and would then spread to the infra- and supraorbitals. The man was skeptical of all operative measures, and it was with considerable difficulty that he was persuaded to have injections of osmic acid tried. On June 16, 1904, we exposed the right inferior dental

nerve from within the mouth, using cocaine anesthesia. The nerve was hooked up just above its entrance into the inferior dental canal, and about twelve minims of a freshly prepared two-per-cent solution of osmic acid was injected into the nerve trunk. The severe pain experienced upon opening his mouth increased the operative difficulties. After the first night there was almost complete relief from the pain in all branches of the nerve upon the right side. There was some sloughing from the wound in the mouth. Since this operation the entire physical condition of the patient has greatly improved. He has gained over thirty-five pounds in weight. There have been attacks of pain of moderate severity from time to time in the upper branches of the nerve, but the relief has been so great that the patient had not cared to have these nerves injected, until in January, 1905, when he was readmitted to the Samaritan Hospital. At this time there was a rather severe paroxysm, involving the region supplied by the right supra- and infraorbital and the left infraorbital nerves, which apparently had been induced by exposure to severe climatic changes. Under ether both infraorbital and anterior palatine nerves were injected through incisions made from within the mouth. Bits of loose gold foil were removed from about the left infraorbital foramen. The right supraorbital nerve was injected through an incision under the eyebrow. The isolation of the infraorbitals was rendered more difficult by the cicatricial tissue resulting from former operations, and as the anesthesia in the areas supplied by these nerves is not complete, it is believed that either certain fibers were missed or that there was anastomosis of adjacent nerves.

The patient has been markedly relieved, however, and while he now complains of some dull aching pain in the face, which is also present in other portions of the body, the lancinating neuralgic pain is absent, and complete anesthesia remains in the area of distribution of the inferior dental nerve, which previously was hyperesthetic. In this case, should the pain recur, injection of the deeper trunks and of the upper cervical branches, which may anastomose, would be advised.

For the present, or until the value of osmic acid injections in tic-douloureux is disproved, it seems that one is no more justified in advocating an operation upon the Gasserian ganglion without a consideration of this minor procedure than in considering Cæsarian section in dystocia irrespective of less dangerous methods of delivery. It is to be expected, however, that operations upon the ganglion will still have a place in surgery, serving in occasional cases in which all milder measures fail to give relief.

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THE DISINFECTION OF CATHETERS BY THE USE OF FORMALIN.

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[From the Clinical Laboratory of the Philadelphia General Hospital.]

The following experiments were undertaken to determine the efficiency of formaldehyde in the disinfection of catheters.

The instruments used were of various sizes, ranging from No. 11 to No. 24. Some were of English web; others of soft rubber.

The apparatus to contain the catheters was an ordinary diploma case divided into a number of compartments by a removable, perforated, iron framework. Four instruments were in constant use in cases of cystitis, while three were practically new. The catheters from the cases of cystitis were, after simple washing in water, inoculated into bouillon. The new ones were boiled for five minutes, cooled rapidly by waving through the air, then infected with cultures of the *B. coli* and the *B. pyocyaneus*.

All the instruments were placed in the case, five cubic centimeters of formalin applied to absorbent cotton put in one end cap, and the case closed and kept at room temperature. No odor of formalin was detected at either end, or along the seams of the case.

After twenty-four hours the instruments were withdrawn, and inoculated into bouillon. It was found that those artificially infected showed no growth, while those from infected bladders mechanically cleansed still contained viable

from the catheters in constant use in cases of cystitis an organism resembling the colon bacillus was previously isolated.)

The instruments were enclosed for the second time, and for the same period. They were then taken out and inoculated into bouillon. The tubes were kept under observation for at least a week at ordinary room temperature, but no growths were noticeable.

The next experiments were to determine whether sterilized instruments were kept sterile by the reagent. To this end the catheters were all boiled for five minutes, inoculated into bouillon, and placed in the case. Formalin was applied as before, and the apparatus closed and again kept at room temperature.

In twenty-four hours the catheters were carefully removed from the case, inoculated into bouillon for the second time, and then replaced in the case. Two days later the instruments were dipped into culture media for the third time, thus making the exposure seventy-two hours. In none of the media inoculated was a bacterial growth evident, even after forty-eight hours' incubation at 37° C.

For the next experiments the instruments were boiled for one minute, infected with the *B. coli* and *B. pyocyaneus*, and dried for two hours in sterile Petri dishes in the incubator at 37° C. They were placed in the receptacle, five cubic centimeters of formalin applied as before, and the case sealed. Twenty-four hours later they were dipped into bouillon, carefully replaced in the case, and the latter again closed. No growths were noticed in any of the tubes of bouillon. After forty-eight hours inoculations were made as before and the tubes of media incubated for forty-eight hours. No growths were noticeable in any of the tubes.

The instruments were next thoroughly washed of formalin, prepared as for the previous experiment, and instead of using formalin, three crushed pastilles of paraform were placed in the absorbent cotton, in the end cap as formalin was applied. The case was closed, and after twenty-four hours inoculations were made into bouillon, with the result that of six instruments infected three showed growths at ordinary room temperature. After seventy-two hours' exposure the

Another series of experiments were tried; using artificially infected instruments, drying them in sterile containers for eighteen hours in the incubator, placing them in the case, and exposing them to the action of formaldehyde generated from formalin (5 cubic centimeters). These exposures varied from thirty minutes to three hours, with the result that in all of the tubes of bouillon inoculated after these exposures bacterial growths were present. It will be seen that not even an inhibiting action was brought about by these short exposures.

Control cultures of all the bacteria were carried along, both at room temperature and in the incubator.

From these few experiments it can readily be seen that five cubic centimeters of formalin applied in the manner herein described will keep catheters sterile when exposed to this reagent for twenty-four hours.

The instruments, being boiled, can be placed in the case and kept there indefinitely, as the gas does not injure the texture of the fabric. It has been proved by the writer and others that boiling the instruments for at least one minute, or as long as five minutes, renders them sterile.

Of the two substances—formalin and paraform—the former is to be preferred, as the latter does not generate the gas with sufficient rapidity without the application of heat.

Nancrede and Hutchings (*Journal of Michigan State Medical Society*, June, 1903) claim that formalin vapor will sterilize infected instruments in twenty-four hours, and that a shorter time has not as yet been determined. Mechanical cleansing from all dried pus, coagulated blood, or mucus will render sterilization easier and demand a shorter time to be effective.

THE X-RAY IN THE TREATMENT OF DEEP-SEATED TUBERCULOSIS.¹

By HENRY K. PANCOAST, M.D.

The object of this paper is to present the results obtained in the treatment of all cases that have come under our care in the x-ray laboratory of the Univer-

sity Hospital. The areas including the deep-seated lesions are the larynx, lungs, peritoneum, joints, and spine. The lymphatic glands are considered by Dr. Newcomet among the superficial lesions.

A general report of the treatment of the deep manifestations of tuberculosis must, at this present date, contain more failures than positive results. But an occasional cure in treating conditions for which successful therapeutic agents are still undiscovered, for the most part, should give to the x-ray specialist the stimulus to put forth his best efforts in a field open for so much research. Our failures to combat the deep-seated lesions with the ease and success obtained in overcoming the superficial processes must be due to one of two causes, mainly: either we are employing an agent of little therapeutic value, or our technique is far from being perfect. It would seem worth our while to assume that the latter reason is at least partly correct.

The first of the deeper lesions to be considered is *tubercular laryngitis*, and secondarily, the pulmonary manifestation, which is practically always found present in conjunction with it.

CASE I.—J. K., white, male, thirty-seven years of age; nativity and residence, Philadelphia; occupation, driver and motorman. Referred by Dr. W. G. B. Harland. Diagnosis, tubercular laryngitis and consolidation of the right apex with softening. No tubercular family history except possibly in the father. The patient had an attack of pleurisy in 1895, but fully recovered. Otherwise the personal history was negative until in March, 1903, he began to lose weight—from 138 to 121 pounds. The diagnosis of phthisis was made the following month, and at that time his throat became sore, and frequently he lost control of his voice. In June, 1903, Dr. Harland reported the following: Weight 122 pounds, cough, tubercle bacilli in the sputum, hoarseness, dryness of the throat, occasional aphonia, flushing, night sweats, and a consolidation with softening at the right apex. Laryngoscopic examination revealed an ulcer on the left side of the epiglottis and a slight hyperemia of the cords. In September the general and local conditions were much improved, as evidenced by the disappearance of cough and night sweats,

¹Read before the Philadelphia County Medical Society, April 26, 1905.

and a gain of 10 pounds in weight. In October he contracted a severe cold, and became worse. The laryngoscope showed a perichondritis of the upper left part of the epiglottis and some swelling of the commissure. For a period of four weeks, during November, at the time of the beginning of the "radium craze," exposures were made by a specimen of radium bromide of 18,000 activity. There were twelve applications, varying from ten to forty-five minutes each, without result. (I may add here that I have very little confidence in the value of radium as a therapeutic agent. Admitting that its widespread use has yielded some brilliant results, and that some small credit must be given to it, it does not seem proven that it will accomplish anything that the x -ray will *not* do, and it certainly falls far short of doing what the x -ray will do.)

Dr. Harland referred the patient for x -ray treatment February 8, 1904. His examination then showed ulceration of the epiglottis and a tuberculoma of the commissure. Five-minute applications were made to each side of the neck alternately, and the apices were exposed each time. After three weeks' treatment the inflamed area of the epiglottis had lessened, but the tuberculoma was larger, and the throat felt worse. An interval of one week of rest was given, and then after eight weeks more of x -ray treatment Dr. Harland reported that the ulceration had almost healed, the tuberculoma was pale and shrunken, and all signs of inflammation had disappeared. The lung condition was then about the same, and the weight varied from 126 to 132 pounds. Exposures were continued until September, 1904, sixty-nine being given over a period of $32\frac{1}{2}$ weeks, and the average length of the applications was five to eight minutes. A medium vacuum tube was used, having a resistance of about 3 inches of spark-gap, and the anode was placed 12 inches from the patient. There was always a decided skin reaction present.

Dr. Stanton examined the patient in January, 1905, and reported that the old lesion at the apex could scarcely be located. Dr. Harland reports the larynx cured, and that the patient works regularly and seems to be in perfect health, and weighs 135 pounds, a gain of 13

CASE II.—W. D. A., white, male, thirty-six years old; nativity Washington, D. C., residence Philadelphia; single; occupation, broker. Referred by Dr. Allburger for x -ray or Finsen-light treatment of an advanced tubercular laryngitis complicating a pulmonary lesion of each apex, with a small cavity in the right apex. No tubercular family history. He had been receiving "open-air" treatment in a sanatorium, and was living in a tent night and day during zero weather. The condition of his larynx was such that every effort at swallowing was agonizing, and it was desired that this dysphagia be relieved or the patient's life would soon end from lack of nourishment. In January, 1905, Dr. Fetterolf reports, "both arytenoids were badly infiltrated and swollen, and the left cord was more or less fixed in a position of semiabduction." X -ray and Finsen-light exposures were begun February 19, 1905, at which time his weight was 101 pounds. After one week of daily exposures of both kinds he had gained four pounds, felt better and stronger, the throat was not so sore, swallowing was much easier, and he was able to sleep all night. After ten days the throat became worse, and x -ray applications were discontinued for a short time, but soon resumed on alternate days, and of five minutes' duration instead of ten. Daily Finsen exposures were continued throughout the treatment. At the end of two weeks examination showed two tuberculomata on the right cord, nearly ready to ulcerate. Dysphagia was intense. After a few days more he felt greatly relieved, and continued to swallow with reasonable comfort until he left the hospital a week ago. The tuberculomata had then disappeared, the right cord was not so swollen and the left was also less swollen and more movable. His lung condition had certainly not grown worse, his cough was better, and the only unfavorable sign was a continued loss of weight after the first gain.

CASE III.—E. N., white, female, thirty-four years old, married. Referred by Dr. Stout, assistant in our x -ray laboratory. Diagnosis, tubercular laryngitis complicating a pulmonary lesion of the right apex. The latter condition is of four years' duration, and the former three months. X -ray treatment was be-

and myself. She had lost 15 pounds in three months, could swallow liquids only, and spoke in almost a whisper. Examination of the larynx showed swelling and redness of both cords. Up to the present time thirty applications have been made, during a period of ten weeks. Each side of the neck has been exposed alternately for ten minutes, and the upper thorax every time, through the clothing. A hard tube with a resistance equal to 3 to 5 inches of spark-gap has been used, with a current of 2 to 3 milliamperes in the secondary. After the fifth treatment swallowing was easier, after the fourteenth decidedly improved, but worse after the fifteenth. A reduction in dosage was followed by improvement. A second relapse required a second reduction later. At the present time her throat hurts but seldom. She can swallow anything without discomfort, has gained 8 pounds, coughs less, looks and feels better, and is stronger.

CASE IV.—A. G., white, female, twenty-two years old, single, dressmaker. Referred by nose and throat dispensary. Diagnosis, tubercular laryngitis complicating a pulmonary lesion of the left side. One brother died of marasmus and one had tubercular adenitis. Dr. Singer reported a tuberculoma of the interarytenoid space. She has had ten applications in three weeks, and her throat feels better. The usual improvement noted after the first few treatments was followed by a period of reaction requiring a decrease in dosage, and subsequently the progress was favorable.

From these cases the following conclusions are to be drawn:

1. Tubercular laryngitis may be aided and even cured by x -ray treatment, provided there can be brought about an improvement in the primary pulmonary condition, however that may be induced.

2. Too vigorous treatment will cause a reaction, which may be carried to an unfavorable degree, therefore great care is necessary in determining the proper dosage in each case.

3. The pulmonary lesions may be benefited probably, in selected cases, but even greater precautions should be observed.

4. Finsen-light applications may be but are probably not of any value in treating the laryngeal lesions. Only the

most powerful lamps need be tried. Such exposures are of value in lessening or retarding a skin reaction from the x -ray.

During the summer of 1904, Dr. Shober referred to me for treatment during his absence a patient upon whom he had been using x -ray applications for recurrent tubercular peritonitis. During eleven weeks under my care she received thirteen exposures, and was then sent back to Dr. Shober. Her cure was a complete one, and she was practically well when she came to me. I have asked Dr. Shober in the discussion to report this case.

We are at present treating a second case of this kind. Applications were begun as soon as the laparotomy wound was healed, and since the first of this month fourteen exposures have been made. Improvement is to be noted, but it is too early to make any definite report. In all such patients receiving x -ray treatment following an exploratory laparotomy, it would be difficult to determine how much benefit results from the x -ray therapy and how much from the operation, as we all know the frequency of cures which are in some manner brought about by opening the peritoneal cavity.

We are now giving x -ray therapy a trial in the treatment of joint lesions, but so far the results have not been noteworthy. Such applications can be of value only when the usual surgical methods are rigorously carried out. The same remarks are applicable in connection with our experiments with tubercular caries of the spine.

*THE TREATMENT OF ERYSIPELAS BY
THE EXTERNAL AND INTERNAL
USE OF THE TINCTURE OF THE
CHLORIDE OF IRON.*

BY ALFRED H. TICKELL, M.D.,
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Our text-books of fifteen and twenty years ago taught us that the internal administration of the tincture of the chloride of iron in erysipelas was a method generally adopted in the treatment of this disease.

Bartholow wrote at that period questioning whether the practice is directly beneficial, stating "its utility depends chiefly on the support which it affords to

the organism whilst laboring under a debilitating disease, and as an abundant supply of aliment is prescribed with the iron, it is impossible to estimate in any given case how far the result may be attributable to the remedy."

Admitting this to be true, if iron acts as a stomachic and promotes for at least a time digestion, it certainly then aids in proper cases to enrich the blood, and in this way renders the individual better able to resist the disease; hence I would urge its administration when indicated. However, it is not my purpose to enter into a discussion of the various internal medications for this disease, but rather to briefly state the results obtained by the use of the tincture of the chloride of iron both topically and internally in erysipelas.

As regards the local application of this remedy in this disease, I have been unable in any literature to find any reference to its use. Various other procedures are mentioned, some having produced excellent results, but in my experience none can equal in efficacy the local application of the tincture of iron. In this connection, however, it is well to state that the treatment as laid down by modern writers should not be neglected—scrupulous cleanliness, pure air, water, sunshine, etc., and a rigid antiseptic treatment of any existing wound, together with the general precautions as those commonly employed in other infectious maladies.

During the past eighteen months I have had occasion to treat at least a dozen cases of erysipelas of various parts of the body, five of them being of the face and head.

CASE I.—Miss O., aged eighteen. The patient suffered a prolonged rigor followed by intense fever (105° F.), with general malaise and vomiting, all symptoms in fact pointing to a severe infection. The following day an acute dermatitis beginning at the nasolabial fold appeared, quickly followed by the whole side of the face assuming a swollen and characteristic hue, with burning heat and pruritus. Various well known remedial applications were faithfully tried—antiseptic compresses, carbolic acid lotions, corrosive sublimate, tincture iodine, ichthyol, etc.

The erysipelatous inflammation continued to spread until the whole head was affected, scalp and all, so that it created a most decided deformity.

Internally quinine, aconite, phenacetine, etc., were prescribed in attempts to relieve the patient from the intense suffering, without any appreciable results.

The patient seemed to go from bad to worse, with no improvement. Finally the tincture of the chloride of iron was painted freely all over the head, the hair having been previously cut to admit of the thorough application of the various other remedies. The effect was immediate: twelve hours after the first application the inflammatory symptoms subsided, and in a few days of continued use the patient was convalescing.

I would add that the iron was given in ten-drop doses internally every four hours as well.

CASE II.—A robust laborer, aged forty, somewhat addicted to alcohol. The infection in this case seemed to begin on one ear, and rapidly extended in spite of all treatment to the whole face and head. His symptoms were very similar to Case I—a severe infection. After the application of the tincture of iron and its internal administration the disease rapidly succumbed.

Some of the other cases were not so severe as the two herein mentioned, but all rapidly recovered the moment the iron was applied. One case, however, assumed the phlegmonous form, pus forming in the tissues of the orbital cavity, necessitating incision; the abatement of all the other symptoms was rapid, the same as in the other cases.

The method of applying, as I have stated before, was simply painting, once daily, the tincture of the chloride of iron all over the parts affected, and beyond to healthy tissue, with a camel's-hair brush, using no gauze or gum tissue to cover. It would appear in my experience that the local application was the prime factor in subduing the external inflammation, by an almost specific action in destroying the specific coccus, as the iron was used internally in conjunction with other topical applications, without like result.

Comparing the ease of application without any deleterious results with many of the other medicaments used in this disease, it appears to me that in the tincture of the chloride of iron we have found a simple and certain remedy for universal use as a topical application in the treatment of this often rebellious disease.

**APPENDICITIS: WITH THE REPORT AND
PHOTOGRAPHS OF THREE CASES
IN WHICH THE APPENDICES
WERE INTERESTING FROM
THEIR UNUSUAL SIZE.¹**

By GEORGE W. SPENCER, M.D.,

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In view of the fact that appendicitis is the most common and most treacherous intra-abdominal lesion of to-day, I think the time spent this evening in going over the symptoms, treatment, and peculiarities of this important affection could not be better utilized.

For years the pathological conditions observed at autopsies in these cases were supposed to be secondary to a primary inflammation in the head of the colon, and that the primary trouble was not in the appendix, but was in the caput coli, and for this reason the disorder which we recognize as appendicitis was termed by the older members of the profession typhlitis, perityphlitis, and paratyphlitis.

In 1867 Willard Parker, of New York, was the first to impress upon the profession the need for operation in the disease then known as perityphlitis.

When Reginald H. Fitz, of Boston, published in the *American Journal of the Medical Sciences* for October, 1886, a paper on perforative inflammation of the vermiform appendix, he could hardly have foreseen that within ten years three-fourths of the diseases that occur in the right iliac fossa, especially in males, could be traced to some disease of the vermiform appendix. Though this was not the first paper that was written on the subject, it was the most important, as it contained reports of 209 cases of typhlitis and perityphlitis and 275 cases of perforative appendicitis. It was not only valuable for the collected reports, but it showed for the first time that the symptoms of appendicitis were the same as the symptoms of typhlitis, perityphlitis, and paratyphlitis. Fitz emphasized the fact that the peritonitis seen in these cases is not always generalized, that it may be circumscribed under the form of an encysted purulent collection. This condition we now recognize as an appendicular abscess. He

believed and advanced the theory of fecal concretions as a cause of the perforation in the appendix.

A second paper by Fitz in 1888 convinced the "up-to-date" medical men that the word appendicitis should occupy the place which had been previously occupied by such terms as typhlitis, perityphlitis, paratyphlitis, appendicular peritonitis, and perityphlitic abscess. He showed that the above diseases are all varieties of one and the same condition, namely, appendicitis.

As regards the etiology of this common, yet dangerous, affection, we must first consider the predisposing causes, and under this heading will come the anatomical structure, position, and blood-supply of the appendix. The changes in the meso-appendix, the age, sex, and habits of an individual, all predispose in a more or less degree to this disease. The position and the anatomical structure of the appendix make it a receptacle for fecal matter, which is constantly passing by its orifice, and in many cases where the appendix has been removed it has been found to contain one and sometimes more small, irregular-shaped masses of fecal material. In some appendices these masses are of a yellowish color, and soft; in others they are black and hard, and go by the name of scybala or fecal concretions. I have seen these concretions so black and hard that they could easily have been taken for grape-seeds, as has often been done.

The insufficient blood-supply and the want of a thorough anastomotic circulation of the vessel or vessels of this organ are undoubtedly a predisposing factor to disease. The appendix being an undeveloped organ, devoid of function, naturally receives a small amount of blood in comparison with an organ that is called upon regularly to perform definite duties. All organs, whether functionless or otherwise, must receive and return blood in a free manner in order to have their vitality maintained. The position and contents of the appendix, the arrangement of the vessel or vessels that supply it, the contents of the caput coli, the relation of the meso-appendix with the colon and appendix, all influence the pathological changes that this organ is capable of undergoing.

In the male the appendix is supplied by one artery, and this artery is a terminal vessel. In the female the blood-supply of the appendix is not only furnished by the

¹Read before the W. W. Keen Surgical Society, Dec. 15, 1904.

appendicular artery, which is common to both sexes, but an additional supply comes from the vessels in the appendiculo-ovarian ligament. If the appendix has a mesentery, the appendicular artery passes along the free edge of this structure; if the mesoappendix is absent, as is at times the case, the appendicular artery in such instances will be found beneath the peritoneal coat of the appendix. Regardless of the distribution of the vessel or vessels that supply this organ, we can readily see how its nutrition can be interfered with by changes in its position, by traction upon the mesoappendix, and by the contents of the ileum and caput coli.

There is no period during a lifetime that one is not liable to have his intestines in the region of the appendix distended with fecal matter or gas. This distention will cause dragging on the mesoappendix; this in turn will throw the appendix into angles, some of which are very acute. The degree of angularity will depend upon the amount of tension exerted by the mesoappendix at any fixed point of the appendix. If the dragging force be disseminated equally in all directions throughout the mesoappendix, the shape of the appendix is not likely to be changed; but if any one portion of the mesoappendix be dragged heavily upon, and at the same time other portions be comparatively free, one can easily understand that the angle formed in the appendix will be great.

I think that in many instances the colicky pains in the right iliac fossa which are known to follow attacks of indigestion are caused by a "kink" in the appendix, which is produced in the above manner. This kink, bend, or angle, as you choose to call it, is capable of producing serious trouble. If it be moderately severe and of some duration, the nutrition of the appendix will be affected, and its tissues will be devitalized to such an extent that they become a ready prey for the bacterium coli commune, and this means inflammation with one or more of its terminations. If the angle be acute, the egress and the ingress of blood will be prevented, and gangrene, perforation, and suppuration will result.

Appendicitis is most common between the ages of ten and thirty. It is claimed that about fifteen per cent of all cases occur in persons under fifteen years of age.

We can account for appendicitis occurring in the young by assuming that they are healthy, vigorous, and always ready to eat. Gormandizing causes disturbances in the gastrointestinal tract, and these disturbances vary all the way from distention of the intestines with gas to intestinal catarrh and inflammation. If habits predispose to appendicitis, eating should have the first place. Patients suffering with acute appendicitis often attribute their trouble to a large meal, or to some article of food that they had eaten, which on previous occasions had proved to be indigestible.

Where we see one female with appendicitis, we see about five males. For this proportion we have one reasonable explanation, and that is that the blood-supply of the female appendix is more abundant than that of the male appendix. This, naturally, makes it less susceptible to disease.

Excluding the comparatively rare cases in which actinomycosis, tuberculous or other diseases are localized in the appendix, we have two chief classes of exciting agencies—the mechanical and the infective or bacterial. Under the mechanical causes we are again forced to speak of the shape of the appendix as regulated by the mesoappendix. The pathological changes that occur in the mucous membrane of the caput coli in the vicinity of the appendicular orifice and traumatism are considered by some to be mechanical exciting causes. Since the bacterium coli commune is found throughout the intestinal tract, and this organism, when on suitable soil, has been found to possess both pathological and pyogenic properties, there is reason to believe that of the exciting causes it must occupy a prominent place. Other microorganisms are sometimes, though rarely, found associated with acute appendicitis. Fowler found in many cases of appendicitis that the bacillus coli communis was found, together with other microbes. These germs are known to exert little influence upon healthy mucous membrane, but if the epithelium at any point becomes devitalized, these germs acting upon this area will induce inflammation. The presence of foreign bodies and fecal concretions can be classed as both predisposing and exciting causes.

At one time it was thought that grape-

seeds were in many instances responsible for appendicitis; indeed, this idea was so prevalent among the laity that it created a financial depression among the grape growers of this country. I have never seen a foreign body that came from the inside of an appendix, though in one case in which I assisted Professor Keen I saw three gall-stones and a gangrenous appendix in the cavity of an appendicular abscess. This was the nearest that I have seen a foreign body to the appendix.

According to Fowler, Keen, DaCosta, Hearn, Deaver, and others, foreign bodies are known to be of great rarity and are considered an infrequent cause of appendicitis, occurring in only about four per cent of operative cases. Fecal concretions, on the other hand, are found in 15 to 20 per cent of such cases. The finding of fecal concretions within the appendix does not signify that the attack was brought on by their presence, as in many cases of this disease no fecal concretions are seen, and often in autopsies on persons who have died from causes not referable to the appendix they have been found. Nevertheless we can readily understand that if the small amount of fecal matter which is liable at any time to get into the appendix should become dry and hard, this hard, irregular mass will irritate the mucous membrane, and cause peristalsis. During this act the hard concretions will scratch and excoriate the mucous membrane; a raw surface will be exposed not only to the infected fecal material, but also to the intestinal microorganism, and what would have been a mild attack of appendicitis might result from the presence of concretions in a serious one.

Time will not allow me to speak of the symptoms that attend the various forms of appendicitis. Most of them present symptoms that are common to all forms. In this disease, like in many others, each case seems to be a law unto itself in many respects. Recently I saw four cases. The first was a man who was awakened from a sound nap by intense pain in the region of the appendix. He presented all the symptoms of appendicular colic with beginning appendicitis, and under the saline treatment he was up and well within three days.

In the second case there was pain and tenderness from the beginning, and the patient was never more than a little un-

comfortable; the pain from the onset of the attack was fixed at a point half an inch above McBurney's point. The appendix could be palpated with only slight pain to the patient.

Neither of the above patients vomited; one had diarrhea, the other was constipated. In the first case the temperature was normal, in the second it was 100°.

In the third case the attack was ushered in with a chill, intense pain over McBurney's point, nausea, vomiting, and constipation; temperature 103° within twenty-four hours after the beginning of the attack. The fourth case I will speak of presently.

Some cases are very mild from the start; the patient walks about and does not see his physician until what he calls indigestion compels him to do so. I have seen patients who have applied to the dispensary for treatment for other troubles, and upon questioning them in regard to previous illness have obtained a clear history of a previous attack of appendicitis, and they worked (some of them) at hard manual labor during the progress of the disease.

On the other hand, some cases are severe from the very onset, and the patients are compelled to lie in the recumbent position in order to get partial relief. Dr. Howard Lilienthal (*Medical Record*, Oct. 31, 1896) reports a case that was unusually rapid and shows the progress this disease is capable of making in a few days. Two days after the onset of the symptoms his patient had a perforated appendix which was surrounded by pus.

Dr. Curtis reports in the same journal an interesting case of a metastatic abscess from latent appendicitis. The patient had a swelling in his heel, which subsided under treatment. Four days later a painful swelling appeared in his arm, which proved to be an abscess in the region of the biceps muscle. It was opened, and a considerable quantity of pus was evacuated. The second night after this operation the patient complained of pain in his abdomen, which he had not done before. Upon examination Dr. Curtis found a tumor over McBurney's point. This tumor proved to be an appendicular abscess between the cæcum and omentum. In this case there was an abscess with no symptoms of a previous attack of acute appendicitis.

Kennedy (*New York Medical Journal*, Oct. 3, 1896) reports a case in which twenty-four hours from the first symptoms an inflamed appendix with a sloughing membrane was observed.

Several years ago I saw a patient whose right iliac fossa was filled with pus, the result of a perforated appendix, though his temperature was normal. One case in which I assisted Professor Keen, ninety hours after the initial symptom the appendix was rapidly undergoing gangrene; the right iliac fossa contained about half a pint of fetid serum and flakes of fibrinous exudate. This patient's temperature was only 99°.

Miller (*New York Medical Record*, Aug. 29, 1896) speaks of a case which proved, upon an exploratory incision, to be an appendicular abscess with marked evidence of recent and severe appendicitis. The tip of the appendix had sloughed off and was surrounded by a deeply situated pus sac. Previous to the operation the patient complained of general weakness, malaise, loss of appetite, and pain in his back. A moderate amount of tenderness existed over McBurney's point. This patient had been feeling badly for ten years, and a slight enlargement which could be palpated above the right iliac crest in the lumbar region led to the operation.

Several years ago I assisted Prof. J. C. Da Costa in a case of appendicular disease where the symptoms and physical signs were so misleading that a retro-peritoneal sarcoma was seriously thought of, as the patient gave a history of the enlargement being slow in development and painless to a certain extent. The mass was very hard and moved with the change of posture of the patient. There was no history of nausea, vomiting, fever, etc. The case, which I will speak of presently, while it gave a fair history of appendicitis, from the evidence elicited by palpation I was not sure of my diagnosis until I had exposed the head of the colon.

These cases are only a few of the many that might be mentioned, and I trust they will put you on your guard and teach you that in many instances each case of appendicitis is a law unto itself, and from the beginning of the initial symptoms to the time of complete resolution we may not be sure as to the exact pathological condition of the contents of the right iliac fossa.

There is a class of cases of appendicitis which occupies the middle place between the mild cases, which are often overlooked, and the acute, severe form of perforation, suppuration, and peritonitis. This class is that which most frequently comes under the eye of the surgeon or physician, and even here the symptoms differ in a more or less degree as regards the onset, duration, and intensity. Not uncommonly patients suffering from this class of appendicular disease will trace their trouble to a hearty meal which contained more or less indigestible substances, mingled perhaps with a little alcohol in some form, and taken the night previous to the onset of the attack. Any time between two and twenty-four hours after this festivity—and it may be that during this time the patient has been exercising heavily or has been exposed to cold or dampness—he complains of uneasiness in his abdomen and generally says he has colic or stomach-ache. To get relief he takes internally home remedies, such as warm water and brandy with a little ginger; over his abdomen is applied a mustard plaster or poultice. The home remedies have been given their allotted time, and on this occasion prove futile. The family physician is called in; he finds the patient assuming different positions to relieve his pain, which is of a severe colicky nature in the right iliac fossa, and radiates to the umbilicus. Abdominal tenderness has not as yet begun to show itself. There is nausea and vomiting, but no fever. This condition is recognized as appendicular colic.

If the head of the colon be exposed at this stage of appendicular trouble by an operation, it will be found distended with either gas or fecal matter, and it may be both. The appendix will be dragged upon by the mesoappendix, and if the appendix be removed and its interior exposed, one or more concretions might be found. The mucous membrane also will be in a state of hyperemia and very irritable.

Such were the symptoms and such was the condition of the caput coli and appendix in a case in which I assisted Professor Keen within twenty-four hours after the first symptom. This appendix was so irritable that it could be seen squirming around after it had been removed and placed on a table. During this motion it emptied itself of a fecal concretion.

Supposing that this patient had not been operated upon? No person could tell what would have happened. More than likely the colicky pains would have become less, and finally would be replaced by a steady aching pain in the vicinity of McBurney's point. Tenderness, which was absent, would now show itself in the region of the right iliac fossa; the belly would become rigid; the patient's tongue would become coated, his skin hot and dry, urine high colored and scanty; he would vomit occasionally, his temperature would range from 90° to 103° , according to the progress of the pathological changes that would take place in the appendix from time to time during the attack. His pulse would also quicken, and instead of moving about in bed as before, he would remain still with his legs flexed in order to relax his abdominal muscles which overlie the appendix. His condition at this stage could be diagnosed as appendicitis, and if the contents of the right iliac fossa be exposed the following condition could be seen: Caput coli distended, appendix dragged upon, kinked, and probably fixed in this kinked position by inflammatory exudate. The appendix would be swollen and might present necrotic areas in the serous coat, these areas being covered by plastic lymph. If the appendix be removed and injected after Abbe's method, and later opened for inspection, abrasions, ulcers, beginning perforation, and points of obliteration might be observed.

Suppose in this case we still wait, hoping that resolution or localized suppuration might take place. During our waiting period a perforation is liable at any moment to occur. If this perforation be sudden, before a sufficient amount of good lymph has been formed to protect the general peritoneal cavity, the patient will fall into a state of collapse or rapidly develop general peritonitis. If the perforating process has been slow, and if the inflammatory exudate is healthy and active, a localized abscess will form. With the formation of this abscess most of the acute symptoms of appendicitis will disappear, and for your diagnosis of pus you must rely upon present and past symptoms, palpation, rectal or vaginal examinations; also the blood examination. Fluctuation is generally absent or indistinct; if you get it you are all the more sure of your

diagnosis. If you do not get it, its absence should not mislead you. In the vast majority of cases the belly wall is so rigid and board-like that it is impossible to elicit fluctuation, and any violence brought about by attempting to get it is dangerous, as the abscess wall might be ruptured during the manipulation.

If we do not operate at this stage—the stage of localized suppuration—the abscess may present itself near the anterior superior spine of the ilium above Poupart's ligament, or, as has happened in the lumbar region simulating a perinephritic abscess, it may discharge its contents into the cæcum, small intestines, bladder, vagina, or rectum. It may rupture and its contents escape into an area which has been walled off by adherent intestines, or it may allow its contents to flow into the general peritoneal cavity, causing peritonitis, which is almost invariably fatal. If an operation be performed before the abscess ruptures, the first indication of pus that meets our eyes in many instances is edema of the tissues which lie over the abscess and under the deep fascia.

I have had my attention called to this edema many times by Professor Keen during operations for this disorder. In some cases, particularly where the abscess has been fully matured for some time, the fluid which produces this edematous condition is absorbed, and in these cases edema is absent. As we approach the wall of the abscess from without inward during the different steps of the operation, the effect of the inflammation upon the overlying tissues is plainly seen. In not a few cases the tissues are matted together by inflammatory exudate to such an extent that it is impossible to distinguish one structure from another, and the abscess cavity may be entered before the operator intends that it should be. A finger introduced into the cavity of such an abscess reveals sometimes nothing but pus confined by a wall of lymph, the appendix having disappeared by disintegration. In other cases the appendix will help to form the wall of the abscess and cannot be identified by touch or sight. Occasionally fecal matter, a gangrenous appendix, and pus can be seen to occupy the same cavity. Rarely a foreign body is seen. In one case, as I said a few moments ago, I saw a gangrenous appendix,

three gall-stones and pus in the cavity of an appendicular abscess. In one case that I operated on at the Jefferson it looked as though there were multiple abscesses separated by weak walls, as the slightest touch applied to what appeared to be a partition would cause large quantities of pus to come from the direction in which the touch was made. Sometimes the cavity of an appendicular abscess is so large that the finger can touch no portion of the wall except the top, and sometimes they are so deep that a pair of hemostatic forceps can be placed in them full length without touching the floor.

Though I have just given you an illustration of a case of appendicitis running the gauntlet from the first symptom, colic, to the stage when pus is formed, we must all remember that many attacks terminate in resolution. Many persons have repeated attacks of appendicular colic which pass away in a short time and leave them none the worse off. The same result is claimed by some in appendicitis; but we know that with these recurrent attacks each attack is accompanied by pathological changes which render an operation more difficult when the time comes to perform it, and most cases of relapsing appendicitis fall into the surgeon's hands sooner or later. Moreover, death has been known to occur in cases in which no pus, perforation, or gangrene was found.

Unfortunately, we have no means by which we can see through the abdominal walls and determine the condition of the intra-abdominal organs during diseased processes, and for this reason we cannot foresee the termination of a single case of appendicitis. Unless the appendix is removed within, say, twelve to thirty-six hours from the time the patient first noticed pain and tenderness in the right iliac fossa, or unless some ingenious individual formulates some plan by which we can study the pathological changes that occur in the right iliac fossa during an attack of appendicitis, we can never be assured of the result of an attack.

In 176 cases collected by Fitz, 88 per cent died in the first eight days, and two-thirds of these died between the fourth and eighth days. Of 35 cases operated upon by Deaver within seventy-two hours, 28 or 80 per cent recovered and 7 died. Of the remaining 15 cases operated upon between the third and ninth day, 10 or 66

per cent recovered and 5 died. Morris (*New York Medical Record*, Dec. 26, 1896) operated upon 100 consecutive cases of appendicitis with a mortality of two per cent. From the pathological condition of the appendices in the 100 cases he estimated the death-rate, if the same cases had been under medical instead of surgical treatment, and he found that in this particular series the mortality could not have been less than 28 per cent.

Morris says: "Patients often die under any form of medical treatment in the first attack or in the second attack, or in the tenth attack. Patients who do not die under any sort of medical treatment often lose much valuable time in bed. No one can foretell which patient will recover, which one will die, or which one will spend much or little time in bed." It is reasonable to believe from the pathological changes which can be seen in the appendices of 100 consecutive cases such as the ones just spoken of that appendicitis should be considered a surgical disorder from the beginning of the attack.

Some surgeons maintain that with slight symptoms an operation should be performed; as slight symptoms are no sign that even in a few hours gangrene or perforation will not occur. Early operation gives us the best result. Operations performed after perforation, gangrene, or septic peritonitis has developed show the death-rate to be higher; but operation is the only alternative in such instances. Some surgeons operate early in the first attack; others wait and temporize, apply an ice-bag over the right iliac fossa, give salines, and operate after the patient gets over the attack. If the symptoms become worse they operate at once.

They all agree as to the best time in a severe case, in one with distinct swelling, and in cases where suppuration, gangrene, and perforation are thought to have occurred or to be liable to occur, to operate at once. In relapsing or recurrent appendicitis the operation gives the best results if done between attacks, as the appendix at this time is more or less quiescent. Most surgeons choose this time if the symptoms during an attack are not urgent.

Professor Kümmel, of Hamburg, in a paper on relapsing appendicitis at a meeting of the Twelfth International Medical Congress held in Moscow during August,

1897 (*New York Medical Record*, Sept. 18, 1897), spoke of one hundred successful resections of the vermiform appendix performed by him. In addition to his own cases, he had collected the statistics of an equal number of cases of relapsing appendicitis in which an operation had been refused. In the refused operation cases "the mortality after three years was greater than in the operated cases." It is evident from statistics all told that the safest and most satisfactory time to perform an operation for the cure of appendicitis is in the beginning of the attack, say from twelve to forty-eight hours after the first symptoms, or during the interval between attacks.

An incision two inches in length, through the soft parts, should allow the surgeon to examine with his finger the contents of the right iliac fossa; and his findings should determine whether or not the incision should be enlarged.

In a recent case, and one with few adhesions, the appendix can and has been taken out in many instances through an incision of this size; but when there are many adhesions the incision should be of sufficient size to enable the operator to work comfortably.

The appendix is not always as accessible to touch as one might think. Sometimes even in clean cases it cannot be found after an extensive search. I assisted in one case and heard of another in which the above was the case. In demonstrating the operation for appendicitis in the surgical laboratory at the Jefferson Medical College, and also in operating, I invariably follow a method devised by Prof. J. Chalmers Da Costa for finding the appendix. The method is as follows: Through the abdominal incision introduce the index-finger and follow the parietal peritoneum outward, then backward, then inward. The first obstruction it encounters is the colon. The finger is then passed down to the head of the colon, and in the majority of instances the appendix will be found on the posterior and internal surface of the colon. This method is particularly advantageous when the incision is so small that the intestines cannot be drawn through it.

The appendix can be removed and the stump treated by various methods. One good method which I employ, and one which has stood the test of time, consists

of liberating adhesions, ligating the vessels in the mesoappendix, excising this structure, placing two ligatures around the appendix near its base, and after placing a warm sterilized intestinal pad beneath the appendix, incise between the ligatures. The stump of the appendix should be lightly curetted, touched with cotton or gauze containing pure carbolic acid, followed by alcohol, then inverted into the coats of the colon by a continuous Lembert suture.

Much can be done during an abdominal section in the way of preventing post-operative hernia by making clean cuts through the skin and different layers of fascia, by separating muscular tissue in the direction of its fibers, by having the incision in the different layers of fascia no longer than the skin incision, and by accurately approximating the cut edges of the peritoneum, transversalis fascia, and the fascia of the oblique muscles.

The peritoneum should be sutured with a continuous catgut suture—fine silk or kangaroo tendon is best for the transversalis fascia—the separated fibers of the oblique muscles are restored to their original place, the aponeurosis of the external oblique is closed by silk or kangaroo sutures, and the skin incision is closed by silkworm-gut sutures, or a subcuticular stitch.

For gaining access to the interior of an appendicular abscess, an incision should be made parallel with Poupart's ligament and over the area of dulness on percussion. This is known as Willard Parker's oblique incision. Sometimes the abscess wall is adherent to the peritoneum and transversalis fascia. When such a condition is found to exist, the abscess cavity can be reached without entering the free peritoneal cavity. When the abscess wall is not connected with the abdominal wall, precautions must be taken not to rupture the abscess wall until the peritoneal cavity is well protected. Strips of iodoform gauze placed so that they will completely surround the abscess and appendicular region will afford ample protection. As this barrier is to remain in place for several days care should be taken to protect it as far as possible by means of sterilized cotton or gauze compresses. Adhesions which form the abscess wall can now be broken through with the finger. When pus appears it is removed

with cotton or gauze pads. After the cavity is empty the appendix is looked after, and the gauze compresses are removed, but the iodoform gauze barrier remains. A drainage-tube is inserted and anchored to one side of the abdominal incision, the abdominal wall being only partially closed, so as to allow the tube and gauze to protrude.

Unless undue symptoms arise, the iodoform gauze barrier can remain in place for three or four days, but it can be replaced by fresh strips of iodoform gauze after the first forty-eight hours. I have had excellent results from this method.

The rule that I adhere to for the removal of the appendix in a pus case is as follows: If the abscess wall is solid, the appendix in sight and not firmly attached laterally to the wall, I ligate and remove it. If the appendix cannot be readily found and the abscess wall is frail, persistent search and attempt at its removal are attended with such danger of breaking into the general peritoneal cavity that they are not to be recommended.

I have with me the photographs of three appendices which I will hand around:

No. 1 was taken from an appendix which was removed from a patient who had distinct symptoms of appendicitis.

FIG. 1.

No. 2 was taken from an appendix which was removed from a patient who had frequent and severe attacks of appendicular colic.

No. 3 was taken from an appendix which was removed from a patient who had no symptoms referable to the appendix, and was discovered by accident during an operation for uterine disease.

Strange to say, the smallest appendix, No. 1, gave the most appendicular trouble. This appendix I removed on September 6, 1897, at the Jefferson Medical College

Hospital. After the contents of the right iliac fossa had been fairly exposed the appendix could not be seen, and was found only after an extensive dissection through inflammatory tissue. I was admirably assisted in the operation by the surgical resident, Dr. Carr.

FIG. 2.

The patient, aged twenty-two, attributed his trouble to a heavy meal which he ate three weeks before the operation and twelve hours previous to the onset of the attack. The attack was immediately preceded by a chill, which lasted ten minutes. Several hours after the chill had passed away he began to have pain which extended all over his abdomen. This general abdominal pain persisted for a few hours, and then settled in the right inguinal region. He said the pain was so severe that he could not assume any position in which it would be the least influenced for the better. After he was put on the saline treatment he felt better; the pain gradually subsided, and in forty-eight hours from the beginning of the attack he felt as well as ever. Two weeks after this attack, and four days previous to th

operation, he was again seized with severe pain in the abdomen, which was constant up to the time of the operation. When admitted to the hospital ward he was suffering with considerable pain in the region of McBurney's point, his temperature was 102.3° , pulse rapid, tongue coated, bowels constipated. Slight palpation over McBurney's point revealed a mass which was hard and seemed to be circumscribed; deep palpation was impossible on account of the pain it induced. This mass was exposed through a three-inch hypogastric incision, and it proved to be inflammatory

from one of the mesenteric arteries gave me considerable trouble. The bleeding came from the depths of the wound, and was finally controlled by applying a pair of long hemostatic forceps. The adhesions were so numerous and the bleeding vessel so deeply situated that it was thought advisable to leave the forceps on instead of trying to apply a ligature.

The wound was left open for four days; it contained this pair of hemostatic forceps, two large drainage-tubes, two pieces of iodoform gauze (each piece two layers in thickness) three-quarters of a yard in length and four inches in width.

Though there was no pus at the time of the operation, it was quite plentiful in less than forty-eight hours. The appendix measured one inch in length and resembled a small grubworm, its caliber being obliterated. The patient made a good recovery.

Photograph No. 2 shows the size and shape of an appendix which I removed from a patient at the Jefferson Hospital April 4, 1902, who for three months previous to the operation suffered with frequent attacks of appendicular colic. These attacks, as time went on, became more frequent and more severe, until finally they became so severe that he was obliged to go to bed. In one week this patient had three distinct attacks of appendicular colic. He made a rapid recovery. When straightened out the appendix measured eight inches in length, it was coiled upon itself, and was found deep in the pelvis. Its tip contained a large, hard concretion.

Photograph No. 3 shows the remarkable size of an appendix removed by Prof. E. E. Montgomery at one of his clinics at the Jefferson Hospital in 1897. The patient from whom this appendix was removed was operated upon for a number of uterine growths, and she never gave a history of symptoms referable to the appendix. During the operation, and after the uterine growths had been removed, a mass fell into the pelvis, which upon examination proved to be a cyst of the vermiform appendix. It was amputated, and while fresh measured five and a half inches in length and four and three-quarter inches in its largest circumference. It has never been opened, but from its general appearance it looks as though it contains a fluid which is thin and watery.

FIG. 3.

in nature and was attached to the caput coli on the posterointernal surface. While dissecting this mass from the head of the colon the appendix was brought into view; it was found to occupy the center of the mass and was surrounded by tissues of low vitality, some of which were on the verge of suppurating, and for this reason, after the appendix had been removed, I walled off all structures the best that I could from the operative area with iodoform gauze, irrigated with salt solution, and drained with two large drainage-tubes. During the operation bleeding

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Leading Articles.

THE PREVENTION OF THE CONSEQUENCES OF GONORRHEAL INFECTION.

It is not many years since both the medical profession and the laity were firmly of the opinion that infection by the gonococcus was a very limited condition, and aside from the local lesions which it produced was incapable of doing further damage. The rapid advances in bacteriological study, and particularly the examination of the blood in certain cases of endocarditis and arthritis, have proved that it is quite possible for the gonococcus to enter the circulation and to produce serious lesions in portions of the body far removed from the genito-urinary tract. These lesions when they occur are in the great majority of cases incurable, and some instances of what appears to be at first glance rheumatoid arthritis are in reality cases of infectious arthritis due to this microorganism.

It is important that physicians should remember these facts not only for purposes of diagnosis, but also

because they may warn their patients of the fact that gonorrhea may become a systemic malady and imperil their vitality. This is also important because it causes the physician to bear in mind that gonorrhea produces grave ravages in the pelvic organs of women, and gynecologists of large experience have stated that a very large proportion of the pelvic disorders met with in married women are due to this infection. Thus, in 1901, the Section on Hygiene and Sanitary Science of the American Medical Association, in reply to a query addressed to men of experience in this country and Europe as to the proportion of pelvic inflammation due to this cause, obtained statistics which showed that about 40 per cent of the cases had their origin in the presence of this coccus. As Clark states in the June number of *Progressive Medicine*, the mutilation, suffering, invalidism, and death caused by the ravages of pelvic inflammation need not be dwelt upon. According to some statistics 40 per cent of married women who suffer in this way is far too low an average. Noeggerath as long ago as 1876 declared that 50 per cent of female sterility was due to this cause. Neisser believes that 45 per cent of the cases of sterility have this origin, and other statistics collected by gynecologists and genito-urinary surgeons of equal eminence give a like percentage. Williams insists that 73 per cent of all abortions are due to gonorrheal endometritis. To be sure, the statistics which we have quoted have been controverted by the studies of Bumm, who showed that a considerable number of women infected by this microorganism conceive and bear children. He thinks that two-thirds of the cases of sterility depend upon faulty development, and that only a large proportion of the last third is due to acquired sterility due to gonorrhea. Clark states that it has been estimated that from 75 to 90 per cent of the male population of large cities have had gonorrhea, and only 5 to 18 per cent have syphilis, and that it is remarkable in view of these facts that the prevalence of this disease has not been more taken into account in its relation to marriage. Janet speaks of gonorrhea and tuberculosis as the great pests of modern times.

This subject naturally brings up the interesting one as to whether and w'

the gonorrheic man may marry. Findley, agreeing with Noeggerath as to frequency and incurability of gonorrhea, questions whether physicians are ever justified in indorsing a marriage when the man has had this disease. It is quite impossible for those of us who have had large experience to believe that the mere fact that a man has had gonorrhea in previous years prohibits marriage, but, on the other hand, it is undoubtedly true that a gonococcic infection may remain quiescent for long periods of time and that it may then be unintentionally transmitted without the infected individual being guilty of wrongdoing. It therefore behooves the physician, when consulted in regard to this matter, to be most conservative in his advice and to have frequent examinations made of urethral secretions before giving his permission for marriage. Findley thinks he would never sanction marriage under these circumstances, but this is undoubtedly an exaggerated view, although it serves to emphasize and impress upon our minds the important facts to which we have drawn attention.

THE INFLUENCES OF QUININE UPON INFLAMMATORY PROCESSES.

A very wide-spread belief exists amongst the profession and the laity to the effect that quinine in full medicinal doses possesses distinct antiphlogistic influences, and this view has existed for many years. In the old days, before it was known that most inflammatory processes are associated with bacterial infection, it was thought that a number of drugs possessed the ability to modify or abort early inflammatory processes. Thus, not only was quinine credited with this power, but mercury, aconite, veratrum viride, and opium were all supposed to possess it to a very considerable degree. In the case of the circulatory sedatives it was supposed that they modified inflammatory processes by their influence upon the circulation. In the case of mercury it was thought to diminish the "plasticity of the blood"—whatever that might mean—and some physicians believed that it diminished the coagulability of the blood, and therefore the coagulability of inflammatory exudates. The manner in which opium

acted was not known, but it was considered to be possessed of a very extraordinary degree of anti-inflammatory power. With the development of the science of bacteriology and with our increased knowledge of the underlying processes connected with inflammation, there has been a gradual diminution in the employment of these drugs as antiphlogistics until, at the present time, their use for this purpose has become almost obsolete. This is an interesting circumstance, not only because of the important position which they at that time held, but also because it has been a gradual process and has not resulted from any single discovery or series of discoveries which have thrown doubt upon their efficacy. Indeed, so far as we know there has been no paper or original contribution by any one of note during the last twenty years which indicates that the old-fashioned confidence in these antiphlogistics was misplaced. On the contrary, their loss of favor has been by a gradual and unnoticed process.

Of all the drugs that we have named, there is, perhaps, more reason to suppose that quinine possesses greater antiphlogistic properties than the others. It has long been known that quinine exercised some influence upon the movements of the white blood-corpuscles; and Binz, Disselhorst, and the writer of this editorial, showed by experimental research more than twenty years ago that the use of this drug in ordinary medicinal quantities diminished the migration of the white blood cells through the blood-vessel wall, and Binz is responsible for the statement that these doses cause actual diminution in the number of the leucocytes. This conclusion is open to doubt, and perhaps is dependent upon a lack of recognition of the fact that there may be a diminution in the number of cells in the peripheral circulation without any actual decrease in the total number of white cells in the body.

Our attention has been called to this subject once more by an editorial note in the *Yale Medical Journal* for June, 1905, in which is quoted a graduation thesis by Dr. F. T. Fitch, who claims from his researches in the laboratory that in animals poisoned with quinine the leucocytes in the blood are considerably decreased, and furthermore that their ameboid movements are arrested. He also states that

the diminution is usually in the polymorphonuclear cells, and that there is a slight increase in the lymphocytes. At the time of the earlier researches which we have quoted no differentiation had been made in various forms of white cells, so that in this respect the observations of Dr. Fitch are new, and deserving of attention. Of course, these observations in no way prove that it is by this means that quinine does good in inflammatory processes. They only serve to point a way by which we can explain the empirical use of the remedy in a large number of conditions. Thus, many physicians believe that quinine is an exceedingly valuable remedy in croupous pneumonia and in acute coryza, which, in a majority of instances, is undoubtedly an infection which becomes possible by reason of a decrease of local or general vitality. It is quite true, on the other hand, that the quinine is often given in excessive doses for these purposes, and under these circumstances it is not to be forgotten that it acts as a circulatory depressant, and that some of the headache which is attributed to the disease is in reality due to the drug.

THE NEW PHARMACOPŒIA.

The new Pharmacopœia of the United States of America has appeared and takes effect September 1, 1905. Most of the changes which are present in it are of greater interest to the pharmacist than the physician. There are, however, a number of changes which are of great importance to physicians. Practically all of the tinctures of powerful drugs have been made 10 per cent in strength. In most instances this has resulted in an increase in dose. Thus, the tincture of aconite has been reduced from 35 to 10 per cent, and the tincture of veratrum from 40 to 10 per cent. On the other hand, the tincture of strophanthus has been increased from 5 to 10 per cent. These changes have been made in order to conform to the standards adopted by the International Conference on Potent Remedies held at Brussels in September, 1902. A large number of changes have also been made in official names of many drugs. Many new drugs chiefly derived from the mineral kingdom, or by synthesis, have been given names which

up to the present are unfamiliar to most practitioners. Antipyrin, it is true, appears under "Antipyrina," but carbolic acid appears under the name of "Phenol;" Salol is known as "Phenylis salicylas;" Phenacetine is official under the name "Acetphenetidinum;" and Urotropin is known as "Hexamethylenamina." A considerable number of changes of a like character are found in the cases of other drugs. It is evident that the profession will be slow to take up with the use of some of these chemical but official terms, preferring the old-fashioned and briefer nomenclature. Another change has been the substitution of the compound word "Fluid-extractum" for the term Fluid Extract; and still another change which is of considerable interest to physicians is the introduction of average doses of all the official preparations which are employed internally, this being the first occasion upon which doses have been introduced into the Pharmacopœia. In all probability the changes in the strength of various tinctures of powerful drugs will be the ones which will prove of the greatest practical importance to physicians. Thus, the average dose of the new tincture of aconite is 10 minims, the average dose of the new tincture of veratrum is 15 minims, doses which are much larger than those which were commonly employed when these tinctures were of greater strength.

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Apropos of the question of the employment of nitroglycerin as a remedial agent, it is important to remember that it is a drug to which the system becomes accus-

the gonorrheic man may marry. Findley, agreeing with Noeggerath as to frequency and incurability of gonorrhea, questions whether physicians are ever justified in indorsing a marriage when the man has had this disease. It is quite impossible for those of us who have had large experience to believe that the mere fact that a man has had gonorrhea in previous years prohibits marriage, but, on the other hand, it is undoubtedly true that a gonococcic infection may remain quiescent for long periods of time and that it may then be unintentionally transmitted without the infected individual being guilty of wrongdoing. It therefore behooves the physician, when consulted in regard to this matter, to be most conservative in his advice and to have frequent examinations made of urethral secretions before giving his permission for marriage. Findley thinks he would never sanction marriage under these circumstances, but this is undoubtedly an exaggerated view, although it serves to emphasize and impress upon our minds the important facts to which we have drawn attention.

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Apobos of the question of the employment of nitroglycerin as a remedial agent, it is important to remember that it is a drug to which the system becomes accus-

tomed with extraordinary rapidity, and therefore in nearly all cases it is essential to gradually increase the dose from week to week until the patient may be taking a quantity which at first would have been quite impossible. On more than one occasion the writer has had a patient who has gradually increased from 1/100 of a grain three times a day to a grain a day, and in a recent number of the *Journal of the American Medical Association* Stewart calls attention to the fact that a number of cases have been reported in which doses many times greater than this were taken by patients with no other than advantageous effects. Thus, as long ago as 1888, he recorded an instance of a patient who at the end of six months of ascending doses was able to take the equivalent of 5 minims of pure nitroglycerin four times daily. In another case which he speaks of 20 minims of pure nitroglycerin were taken daily. It is an interesting point that tolerance for these large doses, so far as the development of untoward symptoms are concerned, can be acquired long before the circulatory condition renders their use essential. That is to say, the drug may be rapidly increased in dose, tolerance may be developed, and nevertheless an unnecessary quantity of the drug may be administered. On the other hand, we reiterate that in many instances the mistake is made of not increasing the dose month by month or week by week.

Stewart states that the administration of these large doses has never been followed by disadvantageous results. But in this we cannot be in accord. In a number of instances full doses of nitroglycerin continued for a long period of time have not only diminished sexual power, but have also caused a lack of vesical control.

It is important in administering nitroglycerin in many cases which suffer from high arterial tension to remember the fact that as the tension is lowered by the drug it is often wise to give digitalis or strophanthus, in order that the tired heart may be stimulated at the same time that the nitroglycerin diminishes the labor which would otherwise be required of it.

One other point in regard to the administration of nitroglycerin is of interest, namely, that, unlike most medicaments, it should be given in chronic cases in a form which is slowly absorbed. To

give it in hypodermic tablets by the mouth produces a sharp physiological effect which soon passes away. But if it is given in well-made gelatin-coated pills or compressed tablets, the pill or the tablet is so slowly absorbed that the physiological influence persists over a considerable period of time.

THE MEETING OF THE SOCIETY OF
SANITARY AND MORAL
PROPHYLAXIS.

An association of clergymen, lawyers, and doctors, formed for the purpose of lessening the incidence of venereal diseases, should formulate some plan by which if these maladies cannot be entirely prevented their prevalence can be greatly diminished, and their conveyance to those guilty of no moral dereliction can be punished by social ostracism and legal penalties in some degree commensurate to the injury inflicted.

Of the papers contributed to the last meeting Morrow's points out that many of the views of the laity upon venereal diseases are the discarded errors of a past generation of doctors. Thus it is commonly believed that sexual indulgence is a physical necessity for men; that gonorrhea is a trifling disease, no more serious than a cold in the head, and to be regarded with very much the amused tolerance that is accorded to seasickness; and that the contagion of syphilis ends with the chancre. Morrow shows that the venereal infection is the direct or indirect cause of fully one-eighth of all diseases which afflict humanity. To syphilis are accorded ninety per cent of all cases of locomotor ataxia, more than seventy-five per cent of all ocular paralyses, a large proportion of general paralysis, paraplegia, and hemiplegia, eighty per cent of all cases of paresis, and every hemiplegia occurring in men under forty years old who are not addicted to alcohol. Syphilis also causes forty-two per cent of all abortions, while sixty to eighty per cent of syphilitic children die *in utero* or shortly after birth. Those who survive are defectives. The gonococcus causes eighty per cent of all deaths from inflammatory diseases peculiar to women, and fully fifty per cent of all gynecological operations performed by surgeons are made needful because of this form of infection. Twenty to thirty per

cent of infected women abort, and from forty-five to fifty per cent are rendered irrevocably sterile. Eighty per cent of the blindness of the new-born, and twenty per cent of this affliction from all causes, are due to gonococcal infection, and most of the cases of vulvovaginitis in children are gonorrheal in nature.

Morrow aptly says: "We chide the public for that ridiculous prudery which looks upon education in sexual hygiene as not proper, as demoralizing even, for the young, and for that traditional prejudice which surrounds sexual diseases with an atmosphere of shame. From the standpoint of science there can be no greater satire upon creative wisdom than the idea that the knowledge of the organs that transmit life is shameful, or that the education which would lead young men to live according to the physiologic laws of a healthy nature is profane. But, we may ask, is the medical profession free from this mental atavism? How many physicians instruct their own children in these matters?" He believes that educational reform should commence in the ranks of the medical profession.

Howard Kelly, after pointing out the inadequacy of state regulation of prostitution, quotes Taylor to the effect that the reason for the failure of the contagious disease acts in Great Britain is incident to the fact that of the two propagators of the disease but one is treated, comparing this to legislation which would propose to limit smallpox by vaccinating the females only. Moreover, it was found impossible to get more than a small percentage of women to submit to examinations. It is impossible to examine any large number of women often enough to prevent disease from spreading, and finally the most rigid examination cannot guard against the danger of mediate contagion.

Kelly believes that the remedy for the evil lies in an active personal crusade. Among the essentials of this crusade he considers better provision for the amusement and recreation of children, better hygienic surroundings, more living rooms, more abundant sanitary facilities; the betterment of working conditions, providing sufficient wages; and finally, "definite faith in God, a faith which leans upon Him at all times for grace and strength to do that which we otherwise could not do."

Andrew H. Smith holds that the solution of the difficulty lies in what he terms normal marriage. This he believes must have a physiological basis in the sexual instinct. He defines it as "a union between a man and woman both in sexual health, which union is prompted in the first instance by the natural inclination of the two sexes, one to another, and is determined in each particular case by the presence in each person of qualities that excite the admiration, esteem, and affection of the other. Persons so united may be expected to find such physical and psychical satisfaction in each other as will not only keep them true to the marriage tie, but will illustrate the highest and most abiding type of human affection." Young people he believes should be educated to look to a normal marriage as the thing deservedly most important in their lives. Smith holds that normal marriage could thus be made to cast its light before; and the youth trained in chivalric ideas would keep himself pure for the as yet unknown mistress of his heart.

Smith would have young girls taught by their mothers the dignity and sanctity of normal marriage, and would have explained to them the danger of infection by abnormal husbands. The advice is perhaps summed up in the statement that "young women should be made to promise not to allow themselves to become in the slightest degree interested in any man without the knowledge of their parents. Upon the first sign that a man has singled out their daughter for special attention, that man should be required to desist from further attention until he has satisfied the father as to his freedom from venereal taint."

Keyes in his paper dwells particularly on the need of sexual education. He aptly states that "we read our boy the Ten Commandments, and he nudges his companion and chuckles as we reach the seventh. He delves into the Bible for those passages, the memory of which is handed down among boys from generation to generation. But if you ask me to tell you how to approach the boy, how to get him into a clean way of thinking, I must confess that I do not know. I know that you can't teach a boy morals out of a book—he will take it into a corner and make fun of it with his friends; you can't teach out of the mouth of a woman, his

innate sense of decency rebels at that; you can't lie to him, he will find you out; you can't scare him much, he won't stay scared. On the other hand, there are a lot of things you can do. You can appeal to his manliness, to his inborn sense of decency, to his sense of physical cleanliness or of religion. But the appeal must reach him with authority and with dignity. It must be directed, as much as possible, to that particular boy rather than to boys in general." Keyes most strenuously insists that the object of this society should be to clear up ignorance of every shade—the ignorance of the prostitute who thinks the way to rid herself of venereal disease is by intercourse with a virgin, as well as the ignorance of the young lad who knows not how to interpret the first stirrings of sexual life; the ignorance of the man who thinks he can marry within one year of his chancre, as well as the ignorance of the boy who looks forward to his first gonorrhea as the portal to true manhood.

Though some of the opinions above quoted would seem to be those of the dreamer and idealist rather than of the practical man, there is a fundamental principle in education which is surely destined to play an important rôle. There is far more reason why the youth of both sexes should be taught the physiology of sexual life and the dangers inherent to its perversions than that they should learn the function of the esophagus, the value of peristalsis, or the chemical action of the gastric juice. There are many reasons why marriage should be permitted only under the issuance of a competent medical man's certificate as to the health of the contracting parties and their proper fitness to produce non-dependent offspring. Excepting for the enormous opportunity offered by blackmail there is every reason why the conveyance of venereal disease should entitle the injured party to compensation and the injuring party to punishment. Moreover, venereal diseases are among the few which are contracted only by direct personal contact, so that personal responsibility can be readily traced. It is well established that chastity in youth is compatible with perfect health with very few exceptions; that sexual indulgence is largely a matter of habit; that the first step is the one most easily prevented, and that this is usually taken in total ignor-

ance of the possible appalling consequences. Until legislators are willing to recognize the existence of venereal diseases and to provide for the punishment of those who diffuse them, and for the seclusion of those who are a danger to the community, and until education upon these topics becomes a part of school instruction, it is to be feared that neither the eloquence of the moralist nor inspection of prostitutes will have any material effect in lessening morbidity.

INTUSSUSCEPTION IN CHILDREN.

Perhaps nothing more strikingly illustrates the increased skill in diagnosis and the advantages incident to following the principles of intra-abdominal surgery as understood by the practitioner of the present day than the fact that Clubbe reports 100 consecutive laparotomies for intussusception in children. Until comparatively recent times this disease was considered extremely rare, and its treatment by surgical intervention was usually postponed until the possibility of such intervention being helpful had long since passed. Text-books of a former generation have many remedies with reports of cure, among them rectal injection with a water pressure of 30 feet. The mortality under such treatment was necessarily extremely high. Clubbe records 50 cases occurring from 1893 to 1901; of these 25 lived and 25 died. The second series of 50 cases occurred from 1901 to 1904; of these 12 died. The difference in fatality is mainly due to the fact that the children in the last series were sent to the hospital earlier. The average time from the onset of the disease to the period of operation in the first series of cases was twenty-eight hours; in the second series twenty-three hours. In the cases that died it was respectively sixty-eight hours and forty-eight hours. Clubbe always practices irrigation, using with a Higginson syringe oil or a warm saline solution, and notes that this treatment will do away with the necessity for operation in about ten per cent of the cases. In seven of his cases he was obliged to resect the bowel, with but one recovery. In the after-treatment morphine is administered.

Although in perfectly typical cases the diagnosis is easily formulated, it should

be borne in mind that many children with intussusception remain in remarkably good general condition for twenty-four to thirty-six hours. The diagnosis is based on spasmodic pain, tenesmus, with small blood-stained mucous stools, vomiting, sometimes the detection of the intussusciptions by rectal examination, and the finding of a sausage-shaped tumor.

Though in the hands of Clubbe, whose experience is probably greater than that of any single operator, there has been a very marked reduction incident to early operation, a mortality of twenty-five per cent is entirely too large for an affection which if diagnosed early is completely and readily remediable. This is another instance in which the surgeon is quite powerless without the coöperation of his medical colleague, but in which providing his coöperation is complete the mortality can be still further greatly reduced. It will still remain true that in some of the cases attended by symptoms of moderate severity no doctor will be sent for until the bowel is irretrievably damaged. In the most experienced hands resection in these cases has been attended by a high mortality, and this is likely to remain the case.

Reports on Therapeutic Progress

THE TREATMENT OF DYSPEPSIA.

The *Clinical Journal* of May 10, 1905, contains the report of a lecture by LEONARD WILLIAMS in which he describes his methods. He says let us take a case of sthenic dyspepsia and see how it should be treated. We will assume the patient to be a man of middle age, who has at one time been fond of athletics, but who has been obliged by business exigencies to give them up, who is capable, hard-working, and energetic. He complains of epigastric discomfort after food, flatulent eructations, and mental irritability. The symptoms are not pronounced until some time has elapsed after a meal; indeed, he not infrequently associates them with the period before a meal, and may attribute them to hunger, a theory which obtains support from the fact that he is always better immediately after he has fully satisfied his rather vigorous appetite. He dines at 7.30 P.M., and is very often awakened between four

and five in the morning with heartburn, pyrosis, sneezing, hiccoughing, asthmatic attacks, or other troubles, which, however, rapidly subside as soon as he is able to "disperse the wind" of which his stomach appears to be full. In the daytime he is liable to suffer so much from palpitation that he feels sure there must be something wrong with his heart.

Now the first thing to be done with such a man is to clear his *prima viæ*. Give him a dose of calomel (remembering that those of dark complexion bear this drug better than those who are fair); order him a Turkish bath, an electric light bath, or an ordinary hot bath, and induce him, if possible, to take some daily exercise in the open air, or at least at the open window. Warn him against wearing wool or flannel next his skin, and enjoin upon him the necessity for adequate mastication of his food. These and other warnings suggested by the special circumstances of the case must be emphasized; but the great, the paramount, the urgent need in such a patient is for an antacid, to be taken either as soon as his symptoms commence, or if possible immediately before their onset.

The antacid which is most popular is the bicarbonate of sodium, but this salt is an antacid pure and simple, and is possessed of no sedative properties. It also has the disadvantage, especially where flatulence is troublesome, of increasing the amount of gas in the stomach. What is required is an antacid agent which is free from this objection, which at the same time is possessed of sedative properties. Such an agent is bismuth. There have been a great many differences of opinion regarding the merits of this drug, even so great an authority as Sir William Roberts going so far as to deny that it is an antacid at all. Sir Lauder Brunton, Dr. Burney Yeo, and other authorities, however, appear to esteem it very highly, and this view is supported by most of those who have made a systemic trial of its action. The disappointments attending its use in suitable cases have been almost certainly due to its employment in insufficient quantities. The ordinary B. P. doses are utterly useless; the minimum which the author employs is, of the subnitrate, 25 grains, and of the liquor bismuth ammonio citratis. 2 drachms.

It is these two preparations which the author has learnt to appreciate most highly. The subnitrate may be given either in cachet form or suspended in a mixture. When prescribing it as a cachet he generally combines it with that excellent sedative oxalate of cerium, whose B. P. dose of 2 grains is also ridiculously inadequate; thus:

R Bismuth. subnit., grs. xxv;
Cerii oxalat., grs. x.

M. Sig.: Ter die post cib.

If, as is not infrequently the case, the patient has a gouty tendency, it is well to add five grains or a little more of pulvis guaiaci to each cachet, but in the author's experience the "little more" is very apt to produce griping, or purging, or both. Another drug which might be added to such a cachet is bicarbonate of sodium. It increases the alkalinity, but it increases also the bulk of the cachet and the quantity of gas in the stomach.

Although the subnitrate is frequently prescribed in a mixture (20 grains of the salt to 20 grains of pulvis tragacanth. compositus), it is not wise to do so. The carbonate acts nearly as well, and does not tend to decompose as the subnitrate does. On no account should the subnitrate be placed in a mixture with bicarbonate of sodium. The decomposition of the former leads to CO_2 being evolved from the latter, and explosions are apt to occur.

If it is desired to give bismuth in a fluid form, the liquid bismuthi ammon. citratis should be used. It is the author's habit to combine it (as in the cachet) with a sedative—i.e., hydrocyanic acid—thus:

R Liq. bismuth. ammon. cit., f3ij;
Syr. pruni. virg., f3ij;
Aque, q. s. ad f3j.

This makes an agreeable and palatable mixture, but if with a view of correcting any gouty tendency say 3ss tr. guaiaci ammon. is added it must be remembered to suspend the latter in 40 grains of mucilage of acacia, and even then the mixture will be deprived of its elegance. There is no objection to adding bicarbonate of sodium to this combination, but there is really no necessity to do so, for it is already sufficiently alkaline.

Now, whichever form is decided upon,

the cachet or the mixture, it must be remembered that the proper time for its administration is some time after food. The length of time which should be allowed to elapse between the meal and the taking of the remedy depends, of course, upon the size of the meal. A full meal will take five hours to digest and will use up a great deal of HCl. A light meal, especially if it be poor in proteids, will use up very little acid—that is why sthenic dyspepsia is so much more common after light meals—and the surplus will want neutralizing relatively soon. It will want neutralizing sooner after breakfast than after luncheon, and sooner after tea than either. After a full dinner the symptoms frequently do not show themselves until about 4 or 5 A.M., and may then, in addition to pyrosis and heartburn, take the far more obscure forms of hiccoughing, sneezing, asthmatic and even anginal attacks. The tendency of any symptoms, however little connected with the stomach they may at first sight appear, to recur regularly at 4 or 5 A.M. should give rise to a suspicion that dyspepsia is at the root of the mischief. It is probable that much of the success which has attended the practice of giving alkalies before meals has been due to the fact that the period immediately preceding one meal is the period which witnesses the close of the digestion of the last—the period, that is, in which there is surplus acid waiting to be neutralized. However that may be, there can be no doubt that the administration of alkalies, and especially of bismuth, at a suitable interval after food offers a means of relief in sthenic cases which is practically unfailing, and the writer would even go so far as to say that if relief is not obtained by such means, then the case is certainly not a dyspepsia of the class under consideration.

THE HYPODERMIC USE OF ADRENALIN CHLORIDE IN THE TREATMENT OF ASTHMATIC ATTACKS.

In the *Medical News* of May 13, 1905, KAPLAN after a trial of this plan of treatment says that if a conclusion is to be permitted from the number of patients studied in the Montefiore Hospital, it is safe to say that the **contraindica-**

tions to the use of adrenalin chloride are generally overstated.

If carefully administered the drug may be used in effective dosage even in subjects with arteriosclerosis.

It is fair to contend that we have in adrenalin a drug which is more efficient in the relief of asthmatic attacks than those ordinarily used in the treatment of those conditions.

Even large doses of the drug freely used do not give rise to a glycosuria.

Adrenalin chloride has a distinct place in the therapeutics of asthmatic seizures.

Although relieving the paroxysms with greater promptness and certainty than most of the other drugs at our command, the hypodermic use of adrenalin chloride is in no sense curative of the disease as such, and equally useless are prophylactic injections.

THE TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS WITH INJECTIONS (CHIEFLY INTRASPINOUS) OF DIPHTHERIA ANTITOXIN.

The *Medical Record* of May 13, 1905, contains an article on this subject by PEABODY which is of great negative value. He says that when Dr. Arthur J. Wolff, of Hartford, stated in January, 1905, that there was a pronounced antagonism between the Klebs-Loeffler bacillus and the meningococcus, he was in the midst of the severest epidemic of cerebrospinal meningitis that most of us have ever been called upon to face; and although we knew a little more of the causes of the disease than our remote predecessors, and had ascertained that in the present epidemic the meningococcus was the sole exciting agent, we felt ourselves as helpless as they had been to cope with it.

Under these circumstances the author thinks he was justified in trying the diphtheria antitoxin, without much hope, certainly, but with the feeling at least that he would do no harm. Accordingly, in the Roosevelt Hospital his colleague, Dr. Jacobi, and he, in their respective services, subjected twenty-two cases to the action of this agent. In all but one of these diagnosis was proved by finding the meningococcus in the spinal fluid. They were all cases of clinically unmis-

takable cerebrospinal meningitis. Most of them were under eighteen years of age, and many of them were young children, a few only being twenty years old or older.

Many of them came under treatment early in the disease, probably before marked anatomical changes had occurred. All of them were subjected to spinal puncture, and from all of them cerebrospinal fluid was withdrawn. Sometimes this was found to be under abnormally high pressure, but by no means always so. The fluid was usually turbid and distinctly purulent, and in every case but one, as already stated, it contained the meningococcus. It is of interest to know that the fluid may be normal microscopically, and sterile in cultures in well-marked, fully-developed cases of the disease. Leube had found this to be the case before. The author has seen a fluid normal microscopically and sterile in cultures preceded and followed (with intervals of a day or two) by turbid, purulent fluid abounding in meningococci in an unmistakable case of the disease. Thus in any given case the negative results of a single spinal puncture may be misleading.

Many of these cases came under treatment early in the disease. One received his first injection on the first day of the disease; five on the second day; six on the third day; four on the fourth day; and others on the fifth, sixth, and later days.

In all cases fluid was removed by tapping, as he has said. This varied in amount (depending somewhat upon the degree of pressure that it showed) between two drachms and an ounce generally, though occasionally more was withdrawn. No marked symptoms followed this procedure as a rule. Occasionally a very dull, apathetic, or semicomatose patient became brighter, and in one instance a transient condition of collapse followed the removal of six drachms. The withdrawal of larger amounts never caused unpleasant symptoms.

Of the twenty-two cases, four received the antitoxin only subcutaneously; seven received it at different times both subcutaneously and intraspinally. In only one case did it seem to cause any unpleasant effect. This was a girl of fifteen, and the effect alluded to was an

urticaria which lasted several days. She received a single intraspinal injection of two thousand units, and made a steady and complete recovery from the disease.

The doses varied from twelve hundred units to fifteen thousand. Only two patients received but a single dose each. In all of the others it was repeated at least once, and some received four, five, and six doses.

The treatment was begun late in January. Of the twenty-two, eleven have died, making a mortality to date of fifty per cent. Seven of these eleven died before the sixth day of the disease. Of the eleven dead, one received the antitoxin on the first day of the disease; three on the second day; two on the third day; three on the fourth day, and only two later than the fourth day. Of the eleven still living, two are entirely well; two others are fully convalescent; five are still under treatment (no longer by antitoxin), with active symptoms and very grave prognosis; and two may be said to be practically moribund.

Thus the mortality of the twenty-two cases, while still uncertain, will go well beyond fifty per cent, and the percentage of recoveries to date is a little over nine.

The author is well aware that these figures are far too small to justify any statistical deduction; but it is fair to assert that there has not seemed to any of those who have watched these cases any influence for good or evil to be ascribed to the treatment of them by diphtheria antitoxin.

THE TREATMENT OF DIARRHEA IN CHILDREN.

WINTERS gives the following advice in the *Medical News* of July 15, 1905, as to the feeding of neglected and mismanaged cases from three to nine or ten months of age which have become subacute or chronic cases. Cases that have been ill for weeks, possibly months, until there is a chronic disease of the intestines, are the troublesome, stubborn, unmanageable ones, and are the cases that swell the death-rate. In this extremity a happy consummation expiates the promulgation of a heresy—an unorthodox food. The writer has proved condensed milk in this class of diarrhea, with the result that conviction, and conscience, compel recognition and advocacy.

In these neglected cases one of two things will save life—breast milk or condensed milk. A bottle-fed child of six or eight months can seldom be induced to take the breast.

With profound apprehension of the evil effects from the prolonged use of condensed milk, and despite prescience of consequent vehement criticism, the author prescribes condensed milk in subacute and chronic diarrhea in young infants, ^{inasmuch} as it is the only food, except breast milk, that will save life.

For temporary use in such cases it *does* incalculable good; its prolonged use does incalculable harm. Condensed milk may be made beneficial or baneful, conformable to its use or abuse. Judiciously used it will save life where nothing else can. Injudiciously used it is a prolific source of disease. The author asserts he would not advocate its use had he not had an experience of years during which it has not once failed him.

The clinical fact that infants who have been continuously fed on condensed milk for any prolonged period have an abiding predisposition to diarrhea of fatal type, does not deter him from having recourse to it in the restricted manner indicated, and in the cases alluded to, believing such cases will become less frequent in the near future, owing to improved management, and rational, logical, physiological feeding.

How to Use Condensed Milk.—For a baby three months of age with subacute or chronic diarrhea, take one teaspoon level full of canned, sweetened condensed milk (scrape off the under surface of the spoon), put it into a china vessel, add to this with a teaspoon twenty-four teaspoonfuls of water which is actually boiling. One ounce of this should be used for each feeding. (The rest to be thrown away. Prepare fresh for every feeding.)

After cooling to temperature for feeding, add two teaspoonfuls of lime water to one ounce of the mixture, and give this quantity (one ounce and two teaspoonfuls) every four hours.

This should alternate with one ounce of hot water and two teaspoonfuls of lime water, every four hours. (Water and food alternating every two hours.)

At the end of twenty-four hours of this management the movements become less frequent and improve in character.

After forty-eight hours, if improvement has progressed, the quantity may be increased to two ounces every four hours, with one-half ounce of lime water added. Alternate this with two ounces of hot water and one-half ounce of lime water.

After forty-eight hours of this management, if the movements have become normal, two ounces of the condensed milk mixture, with one-half ounce of lime water, is given every two hours, and the water discontinued.

One week later, everything being normal, the food is strengthened by making it one teaspoonful to sixteen, or two to thirty-two, of boiling water. Give three ounces of this mixture, with one-half ounce of lime water, every three hours. This strength is not exceeded—one to sixteen—at any period during the condensed milk feeding.

The effect of this feeding is so miraculous in infants apparently hopelessly ill that it is difficult to induce mothers or nurses to discontinue it when the patient has recovered. It is quite impossible to bring any mother who has experienced the effect on a prolonged, seemingly hopeless, case of diarrhea to a discontinuance of the use of condensed milk. The responsibility of the physician is great. The condensed milk must be stopped, or that which saved the child's life will later lead to scurvy, rickets, and to irremediable deformity.

Discontinuing Condensed Milk.—With the advent of propitious weather, if digestion, movements, and appetite are good, condensed milk should be supplemented gradually, surreptitiously.

Instructions.—Take the top ounce from a quart bottle of milk, which has been standing upright on ice for sixteen hours from the time of milking, or in town six hours after it is received in the nursery. Keep this one ounce of cream on ice until needed. One teaspoonful of this cream is added to every second bottle of the condensed milk food, just before feeding.

After three days of this feeding, if the stools are normal, and the appetite good, one teaspoonful of cream is added to every bottle. One week later, or ten days from beginning the addition of cream to the bottle, if the appetite and movements are good, two teaspoonfuls of cream (top ounce from two quart bottles) are added to every bottle.

After continuing this feeding two weeks the condensed milk is gradually lessened, the top cream gradually increased. It now becomes important to take more from the top of each quart bottle of milk, in order that there may be a slowly increasing percentage of proteid in the food.

Feeding in Subacute and Chronic Diarrhea in the Second Year.—With cereal as the only food every case comes under control in a surprisingly short period.

In a bottle-fed child barley (whole barley) gruel, four to six ounces every four hours—five feedings in the twenty-four hours. If spoon-fed, cereals served hot, and with butter and salt every four hours—five feedings in the twenty-four hours. All other food is interdicted. Cold, unboiled water is allowed freely.

Irrigation.—This is an abused, overwrought treatment. Abdominal distention and mortal collapse consequent upon high, large, frequently repeated irrigations are unfortunately often encountered.

To supplement the action of castor oil it is sometimes expedient to irrigate on the first day. Repeated irrigations are exhausting and seldom advisable. These precepts are founded on the rock of experience. Administered faithfully, Winters states that they will bring the frailest, disease-tossed bark safely, securely to the harbor of health.

THE TREATMENT OF ABDOMINAL PAIN.

DEAVER in the *Journal of the American Medical Association* of May 13, 1905, in a long article on this subject, states that in considering the treatment of abdominal pain we must first and foremost keep before our minds the true cause of the pain. It is idle to dose the patient with castor oil or with paregoric, or to order a mustard plaster or an ice-bag, until we have discovered that which we desire to treat; and when this, which is not always easy, has been accomplished, we may then prescribe the appropriate remedy. The whole matter of the therapeutics of any disease may be tersely summed up in the phrase, "Remove the cause;" and the enthusiastic surgeon should not forget that there are other means than the scalpel, in very many cases, by which the cause may be "safely, swiftly, and pleasantly" removed.

Although it is a subject which has al-

ready been alluded to, the author feels it can do no harm to devote a short time to the discussion of the administration of opium in cases of abdominal pain. His unabated opposition to this drug as a remedy in appendicitis and in other inflammatory conditions of the peritoneum is so well known that any further elucidation of his views may seem superfluous. He is willing to acknowledge that opium relieves the pain—that is one of its chief therapeutic actions, and is a result that cannot be denied; but in diseases for which it is employed, as in appendicitis, for example, there are other means equally pleasant and quick, as well as much safer, by which the primary pain—known as appendiceal colic—may be relieved. If the patient is seen early, very soon after the onset of the first symptom of appendicitis—that is, while still in the stage of appendiceal colic—and if there is the history of the ingestion of indigestible food, then the administration of a brisk cathartic, not a drastic purge, with rest in bed, and the local application of an ice-bag to the abdomen, in a few cases of appendicitis will result in abeyance or even complete disappearance of the pain. Such a course of treatment has the additional recommendation that it does not paralyze the sensory nerves of the patient, with the result that if the secondary pain of appendicitis—the pain due to peritoneal involvement—should occur the gravity of the lesion will be readily recognized, and operative treatment, if not already undertaken, can then be instituted; this will not be the case if the sensibilities of the patient are so obtunded by opiates that gangrene or perforation of the appendix passes unnoticed.

It is also claimed by the advocates of the opium treatment—few though they be—that the use of this drug arrests the cell changes, and so arrests the progress of inflammation. This is a theory which is not readily proved or disproved by experiment; but even if it were true for such an organ as the appendix, which the author doubts, it would not remove the cause of the inflammation, the deadly bacteria; it would at most only preserve the appendix in its primitive state of inflammation; and as soon as the specific action of the opium ceased the bacteria would continue their work and systemic absorption of their toxins would recommence.

The author is not, on the other hand, one who can claim never under any circumstances to have employed morphine in cases of appendicitis. He feels that when the diagnosis has been made, and when preparations for the aseptic removal of the offending organ are already under way, then it is inhuman to deny these patients, if they still suffer pain (which is only exceptionally so severe as to require it), the solace derived from a hypodermic injection of morphine.

In certain far-advanced cases of malignant disease of the abdomen, he hails opium as the most valuable drug, and considers its prolonged use for purposes of euthanasia perfectly justifiable.

While we must recognize that removal of the cause of the abdominal pain is the ideal treatment, the writer thinks it should be emphasized, as he has already remarked, that there are other methods open to us than cutting the pain out with a knife or dulling our patient's sensibilities with opiates. In the colic of children nothing will remove the cause, whether it be green apples or plum pudding, so surely as an emetic if the case is seen early, or a purge if it is seen late. In the case of pain due to foreign bodies which have been swallowed, no surgeon should be so guilty of malpractice as to administer a purge. The Vienna treatment of mashed potatoes and other soft foods, so ardently advocated by Billroth, is the only rational plan to adopt; and emetics and purges should be studiously avoided. In these, as in certain cases of colic, the use of opium may relax the contracted intestines and permit of copious fecal evacuations.

The abdominal pain of spinal caries, as we all know, is best treated by placing the patient in bed in the supine position and employing continuous extension of the spine. This is a very efficacious method of removing the cause of the pain—pressure—when its removal by operation is inadvisable; the rationale is the same as extension in early hip-joint disease. Pain from other forms of pressure may be likewise successfully relieved by position. Who does not know of the relief to pelvic and rectal congestions obtained by a rest in bed; of the freedom from nausea and vomiting in cases of gastritis or varicose veins in the stomach or esophagus, which may be obtained by the simple expedient of lessening

the congestion by the position of the patient? Rest on the affected side in cases of diaphragmatic pleurisy, of pneumonia with abdominal pain, even in cases of appendicitis, will in great measure relieve the pain. After an abdominal operation pain in the small of the back is readily relieved by arching the lumbar spine over a pillow, or by supporting it with the nurse's hand; so simple a remedy is often overlooked, and the nurse will ask her patient to be drugged out of the pain, instead of removing it by change of position.

Support to the abdominal walls is often a factor of great moment in relieving abdominal pain. A good firm belt, though in the author's opinion of no value in preventing the formation of a hernia, will often entirely relieve its symptoms. In patients with many old peritoneal adhesions, the most intense intestinal discomfort is at times produced by discarding their abdominal support. A child with a comparatively insignificant umbilical hernia may be transferred from a miserable dyspeptic to the picture of health by the application of a suitable support.

The regulation of a patient's diet as a means of diminishing intestinal pain of various kinds cannot be too prominently kept in mind; but even after this has been attended to, and after all other palliative methods have been tried, there still remain cases where the only cure is by operation. An operation, moreover, even in chronic cases, should not be left too long untried, and should not be regarded as the last resort not only from the standpoint of treatment, but also from the standpoint of diagnosis. The author thinks little of "last resort" operations and rarely performs them. The responsibility for these cases should remain where it belongs. The reason why a surgeon is called on oftener to operate than to assist in making the diagnosis is his own fault and the result of the fallacious teaching of exploratory incision. The natural forerunner of an operation should be the diagnosis, and until the diagnosis is made, with but few exceptions an operation should not be done. It should be the aim of a good surgeon to be a diagnostician as well as an operator, and, being such, his judgment is of as much moment in deciding the question of operation as the nature of the operation. There are very few in-

stances in which a prompt operation in the case of acute peritonitis would not cure the disease; and in almost as many instances an operation at a still earlier stage of the disease would have effectually prevented the onset of peritonitis. Especially true is this of the various forms of intestinal perforation, and the author is firmly convinced that where gastric or duodenal perforation, or perforation by a typhoid ulcer, is unsuspected, immediate laparotomy offers the patient a far better chance of recovery, even if the diagnosis is not absolutely certain, than does hesitation and procrastination in seeking the surgeon's knife. The abdomen should always be explored if there is reason to believe in the existence of hemorrhage; not only may the immediate danger to life from the loss of blood be great, but if the patient survives the hemorrhage the probability of fatal peritonitis is great. As Richardson well says, the use of intravenous infusion of saline solution may render such an operation possible even if the patient when first seen is in collapse and almost pulseless. In such cases as these—either intestinal perforation or intestinal hemorrhage—death without operation is so certain and so immediate, while a fatal termination in a laparotomy negative in its findings—the *laparotomie blanche* of the French—is so nearly unheard of, that the proper course to pursue, it seems to the writer, is no longer a subject for discussion.

TREATMENT OF NON-MALIGNANT DISEASES BY THE ROENTGEN RAY.

BOGGS reaches the following conclusions in an article in the *Medical News* of May 6, 1905:

1. That it is necessary to distinguish between the non-malignant diseases which should and those which should not be treated by the x-ray.
2. That while the continual cry of technique may become tiresome to some who think the subject can be mastered in a few days or a couple of months, the method of application of the rays and the judgment of the operator account largely for successful or unsuccessful work.
3. That it is just as essential to administer a therapeutic dose when applying the Roentgen rays as it is when prescribing powerful drugs.

4. That idiosyncrasy is not a frequent cause of excessive dermatitis.

5. That a dosage which causes stimulation of healthy tissues will usually produce a slight reaction in diseased tissues.

6. That, at all times, it should be remembered that it is not so much the *x*-ray that cures as the judgment with which it is employed.

7. That the *x*-ray is one of the best therapeutic agents known for the treatment of acne and many other skin diseases, but it is unnecessary in many instances to treat the trivial and less obstinate cases by this method.

8. That the *x*-ray, supplemented by Finsen light, is the most efficient therapeutic agent for the treatment of lupus.

9. That the *x*-ray is the most efficient agent for the treatment of certain tuberculous glands, Hodgkin's disease, and selected cases of goitre.

A CASE OF FORMALIN POISONING.

We learn from an article in the *Indian Medical Gazette* for April, 1905, by BOSE that cases of poisoning by formalin are not at all common. Professor Glaister, of Glasgow, in his book of Medical Jurisprudence, mentions two cases only, in which, however, the symptoms did not agree. In one of the cases reported by Klüber the symptoms were of a purely narcotic character; in the other case, reported by Zoru, they were of an irritant nature. Both these cases were non-fatal.

A case which occurred in Calcutta in April, 1904, showed irritant symptoms only, and so far closely resembled the second case of Professor Glaister. The following is the record of the case:

History.—W. T., Eurasian male, aged about forty-seven years, had been drinking hard for some weeks. He was hopelessly drunk on the 28th of April; about half-past four in the afternoon he swallowed by mistake about 3 ounces of a 40-per-cent solution of formalin which had been purchased for some photographic operations. Almost immediately after he was found by his son, groaning, with his right hand over his stomach, and was unable to speak. When he was able to speak he complained of a burning sensation in the throat and stomach, and pointed to the formalin bottle, the contents of which, he said, he had swallowed by mistake.

He was removed to the Medical College Hospital at 5.30 P.M. He did not vomit before admission into the hospital.

Symptoms.—On admission his pulse was rapid, 140 per minute; his face was flushed; his pupils were equal, but rather contracted. He was perfectly conscious and answered questions rationally.

His stomach was washed out with warm water, and the washings were preserved for analysis.

Shortly after admission he began to vomit, and there was continued vomiting during the night. The vomited matter at first consisted of a thin, sanguineous fluid, but later on there was a good deal of dark-colored blood and mucus in it. The pulse gradually became feebler, and early on the following morning it became almost imperceptible. The patient gradually sank, and died at about 10.30 A.M. on the following day (about eighteen hours after the ingestion of the poison). The patient retained perfect consciousness up to the last moment and developed no nervous symptoms.

Treatment.—He was treated with hypodermic injections of morphine and afterward of strychnine.

Post-mortem Signs.—The post-mortem examination was held by the police-surgeon of Calcutta on the 30th of April, at 7.15 A.M. The mucous membrane of the stomach was found intensely congested; there were erosions and extravasations of blood in the stomach. The stomach contained about half an ounce of blood; there was no perforation.

The small and large intestines were congested. The liver was pale-yellow and fatty; the lungs and the membranes of the brain were congested. The right cavity of the heart contained a little fluid blood and some clots; the left cavity also contained some blood.

Chemical Analysis.—The stomach, its contents, and some portions of other viscera, preserved in salt solution, were sent to the author for analysis. He could detect neither formalin nor alcohol in them.

The stomach-washings, preserved in the hospital, were also examined by him. They were distilled, and in the distillate he detected both alcohol and formalin in marked quantity.

Remarks.—The prominent symptoms in this case were the burning sensation in the throat and stomach, and the incessant

vomiting of bloody fluid. These, as well as the post-mortem signs, would point to formalin being a strong irritant poison. The retention of consciousness throughout the attack and the absence of all nervous symptoms seem to indicate that it possesses no narcotic properties, but the nature of the symptoms recorded by Klüber is against such a theory. In Klüber's case the man took several ounces of commercial formalin. He grew drowsy and passed into a comatose condition, which continued for several hours. His skin was cold and pale, and his respirations were frequent; there was no paralysis. There was a complete absence of all irritant symptoms, but the mucous membrane of the mouth and soft palate were found red and inflamed. The comatose condition was succeeded by one of cerebral excitement and confusion. There was suppression of urine for several hours. Recovery took place within three days.

In the second case recorded by Zoru the patient took 15 cubic centimeters ($\frac{1}{2}$ ounce) of formalin; he had violent retching and vomiting shortly after swallowing the poison, and complained of a burning pain in the mouth and stomach, but he never lost consciousness. This case also ended in recovery.

The present case is perhaps the only case on record having had a fatal termination; it thus afforded an opportunity for the study of the action of the poison on the internal organs.

It seems probable that formalin is both narcotic and irritant, and that the nature of the symptoms varies according to the dose administered.

THE PRESENT LIMITATIONS OF SERUM THERAPY IN THE TREATMENT OF THE INFECTIOUS DISEASES.

This important subject is considered by BERG in the *Medical Record* of May 6, 1905. He states that in the case of both the antitoxins and antimicrobial sera the therapeutic action, both curative and prophylactic, is only potential, and not positive in any individual case. It is true, for instance, in the laboratory experiment, that a given fixed quantity of diphtheria antitoxin will safely antagonize and neutralize the effect of a fatal dose of diphtheria toxin when both are injected simultaneously into an animal, or when the

injection of the antitoxin immediately follows the injection of the toxin. Yet it is apparent that the conditions present in the laboratory experiment are not duplicated in the sick-room. First and foremost is the element of time; the injection of the antitoxin does not immediately follow the infection of the patient. Even were the antitoxin injected on the first appearance of pseudomembrane in the throat, the antitoxic injection would still be as many days behind the laboratory experiment as is indicated by the duration of the incubation period of the infection in the given patient. Indeed, when this fact is taken into consideration, it is marvelous that such magnificent results from the antitoxin treatment of diphtheria are obtained. For it is essential that the antitoxin of the injected serum come in contact with the toxin in such a condition that it can enter into chemical combination with it. In other words, it can only bind the toxin which it finds free in the blood and tissues. That which has already entered into firm combination with the body cells, for some of which it has a selective action, is no longer amenable to neutralization by antitoxin. Hence one of the important practical limitations to the efficiency of the antitoxic sera in therapy is the length of time that has elapsed since the infection has occurred. The Ehrlich side-chain theory enables us to comprehend why it is that in spite of considerable lapse of time the antitoxin sera are effective. The toxin molecule becomes anchored to the body cell by a certain atomic group or side chain which Ehrlich terms the haptophore group; but its toxic action upon the cell does not take place until after some time (the incubation period), when it is further attached to the body cell by another atomic group, the toxophore group. The body cell, on the other hand, possesses corresponding side chains to unite with those of the toxin molecule. These side chains are termed the haptophile and toxophile groups. If the antitoxin enters the circulation before the toxin molecule has become attached to the cell by its toxophore group, the toxophile group of the antitoxin molecule chemically binds the toxophore group of the toxin molecule, and thus prevents the union with the toxophile group of the cell. In this case, and this is the usual condition in the curative use of antitoxin sera,

a much larger amount of antitoxin is needed than would have been required if the toxin were free in the circulation and no union with the living cell had taken place. Our present clinical and bacteriological knowledge, therefore, enables us to lay down certain limitations to the use of antitoxic sera in the treatment of diseases produced by the toxic bacteria belonging to our first group. These are:

1. That the bacteriological cause of the disease must be positively identified and known.

2. That it must be an organism which produces a free specific toxin, and virulent enough to be effective in the immunization of animals.

3. That the experimental injection of the antitoxic serum in sufficient quantities be successful in saving animals from death when injected with or immediately after a fatal dose of the toxin specific to the organism.

4. The bacterial cause and its toxin being both specific, the specificity of the action of the antitoxic serum follows as a natural sequence and must be recognized.

5. The combination between toxin and antitoxin being a chemical one, there must be an absolute quantitative relation between the amount of toxin injected and the quantity of antitoxin required to neutralize it.

6. That the antitoxin, when used for curative purposes, must be injected before the union of the toxin with animal cells has become sufficiently firm to cause pathological and destructive changes in the body cells, tissues, and organs, for the antitoxin only antagonizes and neutralizes free or partly free toxin. The time element is therefore of importance in antitoxic serum therapy. It must be remembered, however, that even where pathological changes have already occurred, the neutralization by antitoxin of subsequent toxin that may be developed prevents further pathological changes and enables the system to cure those that have already occurred. The process is further aided in diphtheria by the use of local therapy to the site of the bacterial growth for the destruction of it and its pseudomembranous deposit.

It is on account of this last limitation that tetanus antitoxic serum therapy is so much less efficacious than the antitoxic

serum therapy of diphtheria. In the latter disease the local throat lesion, with its clinical symptoms, appears somewhat before or early in the toxemia, so that the antitoxin is enabled to successfully antagonize the free toxin in the blood and tissues. In tetanus, on the other hand, the infection occurs, but gives rise to no clinical symptoms until the toxin has entered into a close combination with the nerve cells of the brain and spinal cord, for which this toxin has a selective affinity. Then only are clinical symptoms manifested, and this is too late for the tetanus antitoxin to have any effect. Experimentally it has been shown that a very short time (a few seconds) after tetanus toxin has been injected into the blood of animals it rapidly disappears from the circulation and becomes fixed in the central nervous system. This seems to be the key-note of the non-success of antitoxin serum therapy in the treatment of tetanus.

THE TREATMENT OF THE SURGICAL COMPLICATIONS OF PNEUMONIA.

GIBBON has contributed to the *Proceedings of the Philadelphia County Medical Society* the following views on this matter. He believes that the choice of an anesthetic is of very great importance. Personally the author believes that the safest anesthetic in such cases is ethyl chloride, which it is his custom now to use alone or as a precursor of ether in all instances. It is as safe or safer than ether and is devoid of many of the dangers which accompany the latter agent, especially the congestion of the air-passages. In Great Britain this agent is being very extensively used, especially for short operations, and at the Pennsylvania Hospital, where most of his operating is done, it is used in a large majority of the cases.

In operating for empyema it is very necessary that the operation should be quickly done, since prolonged anesthesia is accountable, it is believed, for much of the mortality after this operation. Excepting in case of an encysted empyema it is well to drain the pleural cavity low down, and therefore an excision of a portion of the ninth rib is usually made. If an encysted empyema is present the resection should be done immediately over the point at which the exploring needle has demonstrated the pus to exist. The rib

resection should be a subperiosteal one. It is very easy with a thin periosteal elevator to separate the periosteum of the rib throughout its entire circumference, and after this is done a portion of the rib is easily excised without injury to the pleura or to the intercostal vessels which have been pushed away with the periosteum. After a section of the rib has been removed in this manner the opening of the pleura can be done very deliberately. Occasionally the pus is not encountered at once, and in such a case it is advisable to pass the finger into the pleural cavity, and in all likelihood adhesions will be encountered which, when broken down, will result in the evacuation of a large quantity of pus. If the patient is in a bad condition at the time of operation it is not wise to allow the pus to escape too rapidly, and the author never makes the attempt to remove all the pus at the time of operation, but allows it to escape gradually through the tubes. Two drainage-tubes should always be inserted, and in an adult they should be as large as the finger. Small tubes are apt to become occluded, and it is impossible for masses of lymph, which are frequently present, to escape through them. There can be no objection to the use of large tubes, and when they are employed drainage is much more complete and recovery much more prompt. These tubes should always be sewn to the edges of the wound. Occasionally before inserting the tubes it is wise to remove large masses of lymph, which may be present in the pleural cavity. This saves time, as the liquefying of such masses and their discharge through the tube is a matter of some days or weeks. The removal of such masses of lymph also will often aid the prompt expansion of the lung. No washing out of the pleural cavity is necessary. When this operation is performed promptly after the detection of the pus, the recovery takes place easily and is usually complete in a few weeks. If the operation is deferred drainage has to be kept up for many weeks or possibly months, and in not a few cases second operations have to be performed because of the non-expansion of the lung. The key-note, then, of success in the treatment of empyema is thorough drainage as soon as the condition has been recognized.

Lung Abscess.—Abscess of the lung; although not so frequent a complication

of pneumonia as empyema, is nevertheless not infrequently met with. The most frequent causes of lung abscess are foreign bodies, tuberculosis, and pneumonia. The condition may be either single or multiple; pneumonic abscesses are usually single, tuberculous abscesses are often multiple. A certain sign of lung abscess is pus in the sputum. The symptoms are sometimes insidious, the condition not being suspected until a quantity of pus has been evacuated through a bronchus. The exact localization of an abscess is not an easy matter, and the exploring needle, which is so valuable a diagnostic measure in empyema, is not to be used with the same impunity when an abscess is suspected, as the danger of infecting a healthy pleura is much greater. Fortunately, however, adhesion between the lung and parietal pleura over the abscess is practically always present. The *x*-rays have added somewhat to our ability to localize a lung abscess.

Before attempting to evacuate an abscess of the lung the surgeon should first resect one or two ribs over the area in which the abscess is indicated, and then introduce an exploring needle or trocar. If pus is encountered the abscess should be then evacuated by a free opening made with a knife or hemostatic forceps. The Paquelin cautery for such purpose does not seem to be used so frequently now as formerly, as it has been shown that the danger of hemorrhage is not so great in these cases as it was once thought to be. Great stress has recently been laid upon the value of palpation in the localization of a lung abscess, and it is certainly, excepting for the exploring needle, the most reliable diagnostic means. If the surgeon finds that there are no adhesions between the lung and the chest wall and he has located an abscess by palpation, two procedures are open: first, immediate drainage through the pleura, and secondly, allowing the lung to become adherent at the point at which the ribs have been resected; with subsequent drainage at this point. Many surgeons now are draining abscesses of the lung through the pleural cavity without waiting for adhesions to form. Unless the patient were in a very bad condition and in great need of immediate drainage, it would seem better to wait twenty-four or forty-eight hours for adhesions to form and then evacuate

the pus. Such adhesions may be produced by suturing the lung to the chest wall or by gauze packing.

The surgical treatment of abscess of the lung due to pneumonia is more successful than that of any other variety of lung abscess.

THE DIET IN TYPHOID FEVER.

This well worn but always important question is discussed in *American Medicine* of May 6, 1905, by NICHOLS in an able paper. From the reports presenting definite figures the author has been able to collect in all 1000 cases of typhoid fever, in which the patients were treated on the enlarged diet plan, with 77 deaths, a mortality of 7.7 per cent.

Among all the reports that he has found, not one observer who has given the liberal diet a candid and sincere trial condemns it. All agree that the evil results generally feared were not produced. Tympanites, diarrhea, hemorrhage, perforation, and relapse did not seem to be increased in frequency, if indeed they were not decreased. The general average mortality of 7.7 per cent which he has found certainly does not support the prevailing notions as to the dangers of mixed feeding. The liberal diet to be justified, however, must have not only the mere negative quality of safety, but must present positive advantages and superiority of efficiency and results over the present system. Those who have given generous feeding in typhoid fever a trial are quite unanimous and emphatic in the expression of their convictions that the method is far superior in its results to the present restricted diet. The special advantages that have been observed or may be expected are the following:

The comfort and contentment of the patients are far greater under generous feeding than under the customary diet. The writers are unanimous in their emphatic and gratified expressions on this point. The patients suffer much less from hunger, and, especially, the distressing hunger ordinarily present in the early convalescent period, while not entirely abolished, is greatly diminished, and the temptation to indulge surreptitiously in forbidden food is much lessened.

With a large diet list to choose from, the special likings of the patient can be

met and greater variety introduced into the feeding. In case of indigestion and intolerance of food, with a large list to select from, there is a greater chance of being able to find some food that is satisfactorily borne by the stomach, while the physician who uses only milk and soup is at a loss what to do when these disagree.

The adequate diet should, so far as is possible in this disease, eliminate the effects of starvation; and it is probable that it is not even yet entirely known what symptoms are due to insufficient nutrition and what to the disease proper. For instance, there is some ground for believing that the subnormal temperature characteristic of the beginning of the apyretic period is a starvation symptom, due to the fact that at that time the organism having regained the power of anabolism greedily stores up food material in its tissue, and if the food supply is inadequate does not liberate enough food energy to maintain body temperature. While exact comparative observations are yet needed to settle this point, it is probable that in the well-fed typhoid patient the post-febrile depression of temperature will be found less in range and duration than in the ill-fed patient, an indication of a better nutritive condition.

The patient's strength, nutrition, and general condition seem to be better maintained on the liberal diet; but if there is any increase in the patient's powers of reacting against the disease, a shortening of the period of pyrexia might be expected. So far as can be judged from general impressions, in the absence as yet of sufficient exact comparative statistics, it is probable that liberal feeding may be shown to be capable of slightly shortening the course of the fever. There is general and positive agreement among the writers that the duration of convalescence is materially shortened in the well-fed patients. This is to be expected, since the less the patient is allowed to lose the less he has to regain; and the customary delay of seven to ten days after the fever subsides, before the resumption of feeding, is done away with. Writers on the subject make little mention of the effect of free diet on the nervous complications and profound toxemic conditions sometimes occurring in typhoid cases. In cases presenting these complications it is often difficult to administer food even in small quantities, and it

is probable that these bad conditions are made much worse by the aggravated in-nutrition thereby enforced. It is these cases in which it is practically impossible to feed at all that swell the mortality rates in typhoid fever.

The better maintenance of strength and nutrition through ample feeding should be manifested in the long run by a lowering of the death-rate, since in cases in which the issue is delicately balanced the bettered nutritive condition may turn the scale in favor of recovery. The statistics of Shattuck and Bushuyev, so far as they go, show a difference in mortality of from 1.5 to 4 per cent in favor of the liberal diet. If generous feeding can effect a lowering of anywhere near 2 per cent in the general mortality of typhoid fever, the aggregate results attainable would be of the highest order.

TREATMENT OF RHEUMATISM AND OTHER AFFECTIONS OF THE JOINTS.

GRANDY in discussing this subject in the *Journal of the American Medical Association* of May 6, 1905, says that in the treatment of acute articular rheumatism, which is an acute febrile disease, rest in bed and a skimmed milk diet, with local applications of heat or cold to the affected joints, is required. The salicylates are indicated here in large doses, though Osler says they are no longer to be considered as specific in this disease. It may be necessary to give morphine or the coal-tar products to quiet the pain.

Arthritis Deformans.—Here an entirely different line of treatment must be followed. Rest in bed is seldom necessary, though the joints should not be overexercised during the more acute stage of the disease. The diet should be as liberal as can be digested, and a strict antiuric-acid diet does great harm. Tonic treatment should be instituted, the syrup of the iodide of iron being especially useful. Dry hot air and galvanism should be used on the affected joints, and later on massage and passive movements. If ankylosis has occurred, good results cannot be expected, but in earlier cases the treatment just laid down will give good chances of success if it is persisted in.

Gout.—The acute attacks call for rest in bed, free movements of the bowels, a mild diet, large quantities of water,

colchicum, and possibly morphine, when the pain cannot be endured. Hot lead and opium wash locally is often very soothing. The salicylates are generally said to be contraindicated. In the more chronic form or between the attacks insist on a light general diet, regulated to suit the digestion of the patient, iodide of potash, and plenty of water. Also see that the skin, kidneys, and bowels are doing their work, and that the patient is taking regular, moderate exercise.

Tubercular, Gonorrheal, and Septic Arthritis.—These cases all call for absolute rest, even immobilization of the joint and an alleviation of the pain. The causative trouble (the gonorrhea or the local infection) must be treated. Surgical interference nevertheless is often required, and the advice of a competent surgeon should be sought early. There are no specific remedies for these troubles, and the most to be expected from drugs is the alleviation of pain, but local applications of heat or cold are commonly more useful than any drug.

Non-articular Affections.—Though we are really only considering joint affections, the author wisely adds a word or two on the treatment of those forms of neuritis which we commonly term muscular rheumatism. The acute form calls for rest and relaxation of the affected nerves and muscles, together with an alleviation of pain. This is obtained by rest in bed, with heat, gentle massage, galvanism or acupuncture, if there is spasmodic contracture of the muscles, while the pain may be controlled by the salicylates or by the coal-tar products. In the more chronic or recurrent cases the cause of the trouble must be searched for. If it is due to a toxemia of any kind, the cause of the toxemia must be removed and the irritating substances must be eliminated by promoting a freer action of the skin, bowels, and kidneys. If it is due to an anemia, that must be remedied, and as one attack makes the nerves more sensitive, such a patient should be made to wear warm clothing. Do not diet the patient unless the trouble seems to be due to an intestinal or gouty toxemia.

Finally, do not put every patient who has pain in or around the joints on the salicylates, or on "a lithemic diet," but look for the true cause of the trouble, for there are different affections of the joints

as well as different affections of the digestion. The results of this treatment have been notoriously poor, as was to be expected when we consider what a small percentage of the cases it really suited. Let us, therefore, sift out our cases and try to treat them rationally, and so remove one of the so-called reproaches of modern medicine.

*THE TREATMENT OF MENORRHAGIA
AND HEMOPTYSIS BY INHALATION
OF NITRITE OF AMYL.*

In the *Scottish Medical and Surgical Journal* for May, 1905, COLMAN states that in his study of this subject Dr. Francis Hare, of Brisbane, did not feel justified in deliberately trying the effect of nitrite of amyl on the menstrual flow, but that accidentally, in the course of treating a case of angina pectoris, he found that inhalation of nitrite of amyl checked menstruation completely in this patient on several occasions.

This point attracted the attention of the writer, as at that time he had a patient suffering from severe menorrhagia, which he had found very difficult to relieve. It seemed to him that a drug which stopped normal menstruation would probably check the excess at least in his patient's case.

From the details of the case and the results of the experiment given by the author in his paper, it would seem sufficient to state that the drug was most successful. By means of it the loss of blood was kept well within normal limits after other methods had failed, and the patient's general condition very much improved.

Amyl nitrite must be looked upon as a distinct help in the treatment of inaccessible hemorrhage. Its utility in hemoptysis has been proved by Hare in a sufficient number of cases to warrant a much more extended use than would appear to be the case at present. In menorrhagia, in the one case now reported, the successful use was undoubted, and further trial in similar cases will, in the author's opinion, meet the same success.

There can be little doubt that the sudden lowering of the blood-pressure is the main factor in the checking of hemorrhage by inhalation of nitrite of amyl.

This sudden lowering of blood-pressure allows clotting to take place in the bleed-

ing area, be it ulcerated lung surface or engorged endometrium. The blood-pressure rises again, but gradually, and so the clots formed are not displaced. In short, the action of nitrite of amyl is a very close imitation of nature's method of checking very severe hemorrhage—viz., syncope, clotting in the ruptured vessels, gradual rise of blood-pressure, and return of consciousness, the rise of pressure being not rapid enough to expel the clots.

Lastly the inhalation of nitrite of amyl seems to have no bad effects on patients, the headache usually complained of being very transient.

*ACTION OF COPPER ON ORGANISMS IN
WATER.*

In the *American Journal of the Medical Sciences* for May, 1905, there are three original articles upon the action of copper as a germicide in pollutable waters. The first of these, by PENNINGTON, reaches the following conclusions:

1. Copper electrodes carrying a small current are actively germicidal for *B. typhosus* and *B. coli communis*.

2. *B. typhosus* is the more easily affected.

3. That it is the copper which plays the important rôle is shown by substituting for it platinum electrodes.

The second article, by GILDERSLEEVE, concludes as follows:

1. Dilute solutions of copper salts have a marked destructive action on many bacteria. Of these salts the sulphate is most active. This is probably due to the fact that it undergoes electrolytic dissociation more readily than the others.

2. The amount of sulphate to be used in the water should be from one part in 250,000 to one part in 100,000, depending on the character of the water.

3. Colloidal copper will quickly destroy certain bacteria; should copper vessels or plates be used to destroy bacteria in water they must be kept highly polished, or the bactericidal properties will be greatly reduced.

From the writer's experience there is no evidence to show that copper, ingested in small quantities for long periods, has a detrimental action on the health of an individual.

The third contribution, by STEWART,

presents the following statements as to his conception of this important matter:

1. There is a natural tendency for typhoid bacilli to die when the water containing them is allowed to stand for a long period. There may be a temporary increase in the number, but this is followed in several hours or days by a decrease and a final disappearance.

2. Trials were made as to the period of total disappearance of typhoid organisms which had been placed in sterile Schuylkill water and in that taken directly from the tap, and from the river surface containing large numbers of water organisms. These waters were placed in vessels of glass, porcelain, tin, and copper, and their contents, kept at room temperature, were plated every fifteen minutes for periods ranging from three to six hours. All the experiments were repeated many times.

3. Sterile drinking-water in clean copper vessels inoculated with typhoid bacilli invariably showed that the bacilli had all perished in one hour. Water similarly treated in tin vessels invariably showed living organisms at the end of twenty-four hours. Water similarly treated in glass vessels exposed to light showed varying results, but in no instance had the typhoid organisms all perished in three hours. Water similarly treated in aluminum vessels showed a disappearance of the typhoid organisms in three hours.

4. Raw tap-water in glass vessels showed an increase in the number of organisms in three hours; occasionally there was a slight diminution in their number. Raw tap-water in copper vessels in one experiment showed a diminution from 384,000 germs per cubic centimeter to 18,000 per cubic centimeter in three hours. Usually the diminution was not so great. Raw tap-water containing large numbers of river organisms and considerable vegetable matter, when inoculated with millions of typhoid organisms and placed in a copper vessel, showed that the typhoid organisms were killed off in one and three-fourths to two and one-half hours.

5. Water containing colloidal copper has a more rapid tonic action upon typhoid organisms than upon river-water organisms.

6. The quantity of colloidal copper given off from a one-liter copper vessel in three hours was one part to four million. This amount killed off the added typhoid

organisms in from one and three-fourths to two and one-half hours, and chemical experience has shown that this amount of colloidal copper is harmless when taken into the human system.

7. In epidemics of typhoid fever water could be purified of typhoid organisms by allowing it to stand in a copper vessel for three hours.

THE X-RAY TREATMENT OF MALIGNANT GROWTHS.

In the *Journal of the American Medical Association* of May 6, 1905, WILLIAMS tells us that for superficial growths the ray is indicated because it is so uniformly successful, its application is painless, there is less scar and deformity, and the growth is less apt to recur than with any other form of treatment.

For deep growths, until we can show more uniformly good results, radical surgical procedures should be recommended. We must give the patient the benefit of the probabilities and not possibilities. It is, however, but rational that the surgical procedure should be followed by sufficient *x-ray* exposure to destroy malignant cells several inches from the surface. This is possible, as has been shown, and the patient should have every possible chance to have the malignant cells completely eradicated or destroyed.

Inoperable cases should be treated with the ray because remarkable results have been obtained, and the most distressing symptom, pain, may at least be relieved. It is by means of these cases that we must demonstrate the value of the *x-ray* and so extend its usefulness.

In conclusion, the author reiterates that we have in the *x-ray* an agent that has a specific and destructive effect on malignant tumors by taking away the life of their cells, and that its application in treatment is limited only by the ability to reach the growths with the proper amount of energy and safety to the patient.

This mysterious form of radiant energy is still in its infancy, yet what it has already accomplished makes us hope and expect that by careful study and conservative practice we can bring it more and more to our aid, especially in destroying the malignant tumors, which are mercilessly attacking their victims with increasing and alarming frequency.

THE PROTECTION OF THE ROENTGEN
RAY OPERATOR.

LEONARD gives the following advice in the *Journal of the American Medical Association* of May 6, 1905: If the fluoroscope is used the operator should never place his own hand on it for the purpose of estimating the quality and intensity of the light; there are more accurate methods and instruments of precision for making these measurements without risk to the operator. In every instance the screen of the fluoroscope should be covered with a sheet of one-fourth inch plate glass; this does not afford absolute protection, however, as some rays will penetrate it.

The operator should stand behind a thick lead screen, made of sheet lead with an opening corresponding to the plate glass in the fluoroscope. A fluoroscopic examination under other conditions is dangerous to the operator if frequently repeated. The patient's body affords some protection, but the observer is certain to enter the irradiated field if great precaution is not used.

Although it is highly probable that the serious results produced in operators' hands are due to the action of the Roentgen rays, there are probably other contributing causes. Among these the repeated introduction of the hands into the high induction fields surrounding the coil must be considered. Any contributing factor, if it is an agency whose action is unknown, should be avoided as far as possible. It is safer, therefore, to place the induction coil in an adjoining room, leading in the secondary wires through porcelain tubes, and having the controlling apparatus in the operating-room. This is especially necessary in large hospital laboratories where more than one coil is in use, and where many patients are being treated.

Since the author has employed these methods of protection he has noted marked improvement in, and practically a cure of, a severe dermatitis that had been so intense as to cause loss of sleep from the pain.

If Roentgen operators would avoid serious injury, such as has proved fatal in one case, and has caused two experienced operators to lose their hands, they must observe the utmost caution in subjecting themselves to radiations from a Roentgen tube. An operator should

never place his hand in the irradiated field, and should never employ it on the fluoroscope to test the light. He should always employ an opaque shield surrounding the tube, and should keep his hands out of high potential induction fields.

The author has been variously and often erroneously quoted in reference to the treatment of Roentgen ray burns. The following is the treatment which he employs, and which he has found the most efficient in treating his own dermatitis:

The hands should be washed and soaked in water as hot as can be borne. It will be found that they gradually accustom themselves to very high temperatures, and that the temperature of the water can be gradually increased. The hands should be scrubbed with a sterilized brush, using Eichhoff's superfatted resorcin soap. This will be found very soothing. After thorough washing the hands should be well rubbed in ointment of lanolin containing one-half ounce of boracic acid and one drachm of resorcin to the ounce. This should be done both morning and night, and the hands should always be washed in hot water with the superfatted soap. Simple superfatted soap or soap and lanolin can be used if the resorcin is too severe, with the substitution of benzoic acid in the ointment.

The thickened epidermis and horny growths, with the indurated edges of the indolent ulcers, can be softened by covering them with ointment under oiled silk. The softened epidermis then should be gently removed. The ointment should be renewed after each washing. Small healing ulcers that have become healthy can be covered with surgeon's isinglass plaster, after the hands have been washed and anointed; these ulcers often take from four to six months to heal and may cause intense pain.

In treating the acute erythema resulting from Roentgen ray treatment, the author has employed the stearate of zinc composition with 10-per-cent ichthyol. It is very efficient, subdues the inflammation and itching, and helps to produce the tanning which is so essential before deep treatment can be efficiently employed. The powder should not be confused with the stearate of zinc ointment, as any ointment will soften the skin and render it more liable to break down and to slough. The substitution of the ointment for the stearate

powder resulted, in one case, in the formation of a large ulcer. The entire epidermis adhered to the ointment and came away with it.

Where an open ulcer has formed, strict antisepsis should be maintained, and irritants should be carefully avoided. Sterile water is an irritant, while normal salt solution and boric solution are not. After cleansing the resorcin ointment should be applied to relieve the pain and to promote healing. The employment of the stearate of zinc composition powder with 10-percent ichthyol seems to act as a prophylactic and prevents the production of serious burns during severe Roentgen ray treatment.

THE CURABILITY OF EARLY PARESIS.

In the *Journal of the American Medical Association* of May 6, 1905, DANA states that it seems to him that if the cases are recognized early there is no need of any very novel methods of treatment. He believes that the patients should at once be turned entirely from their former modes of life; that they should be sent where they can get rest and fresh air; that they should receive, if possible, hypodermics of the bichloride or salicylate of mercury, and that this should be accompanied or followed with iodide of potassium and tonic measures. He attaches special importance to the effect of hypodermic medication, though all his patients did not receive it. It is not always necessary to give large doses—i.e., gr. $\frac{1}{4}$ twice a week is sometimes enough, but this may need to be kept up for two or three months. In other cases gr. ij or even gr. iij once or twice a week is required. The technique requires care. During the course of treatment there should be a very liberal use of lukewarm water and hot bathing (a warm bath every day and a hot bath once or more weekly), and every possible attention should be given to the general nutrition of the patient.

With these measures it is believed that a good proportion of persons who are threatened with paresis can be permanently helped, and it is hoped that the medical profession will become trained to recognize these cases so quickly that before many years we may get the same gratifying results in paresis that we do in tabes.

LUMBAR PUNCTURE.

The recent appearance of epidemic cerebrospinal meningitis in various parts of the country has attracted renewed attention to the operation of lumbar puncture. The general use of this procedure for diagnostic purposes in various diseases of the nervous system, other than meningitis, has also led to its frequent use. With the advent of such a method of obtaining information or as a means of therapeutics, the question naturally arises again as to the harmlessness of the procedure. The general opinion is certainly gaining ground that, properly performed under aseptic precautions, the operation is trivial and should give rise to no symptoms of importance. On the other hand, an occasional fatal outcome, observed particularly in conditions of intracranial pressure originating in the posterior fossa of the skull, has led in certain minds to a skepticism regarding the general use of the method.

In connection with a paper recently read before the Berlin Society for Psychiatry and Neurology on the Chemical Investigation of the Spinal Fluid, an interesting discussion was aroused on the subject of lumbar puncture which brought out considerable diversity of opinion. Oppenheim, referring to some observations of Nissl, pointed out the necessity of determining the character of the symptoms excited by the puncture, which he thought were often well marked. Remak in general agreed with Oppenheim, and had reached the conclusion that lumbar puncture as a diagnostic measure had been somewhat overdone. Ziehen, on the other hand, considered that a careful lumbar puncture was a practically safe procedure, but he admitted the desirability of informing the friends of a patient that such an operation was to be undertaken and that a slight amount of danger was associated with it. He also urged that but five or ten cubic centimeters of fluid should be withdrawn. Siemerling and Alzheimer have also drawn attention to the complications which may result, and Fürstner has warned against the use of lumbar puncture by physicians, considering it a surgical measure. Mendel has expressed himself in a similar way. Finally Gerhardt, in introducing the subject for dis-

cussion at a meeting held last year, urged that lumbar puncture should not be practiced in any case in which brain tumor was suspected. He had been able to collect twenty-six deaths from the literature, to which, no doubt, many unreported cases might be added.

It is certainly timely to call attention to the opinions of such men as we have briefly quoted above regarding a procedure which is apparently coming to be used as a somewhat routine measure. That its positive danger is small if the puncture be properly performed is not to be questioned. On the other hand, the evidence is sufficient to show that the operation should not be entrusted to wholly inexperienced hands, and that precautions should be taken in every detail if untoward symptoms are to be wholly avoided. —*Boston Medical and Surgical Journal*, April 27, 1905.

THE TREATMENT OF PLACENTA PREVIA.

In the *Journal of Southern Medicine and Surgery* for April, 1905, DE LEE gives the following advice as to the proper mode of treatment in this condition: Let us say the labor has begun. If the hemorrhage is very slight one may wait. One may not go away and wait! One must stay at the very bedside and carefully note the flow of blood. In the meantime all preparations are perfected for eventual operation and for combating all possible complications. If the patient loses more than two ounces of blood in two hours, the bag of waters is to be punctured.

If the placenta occupies only the side of the cervix, this little maneuver alone may suffice, the placenta now being permitted to lie flat on the cervical wall, and to retract with it. Further separation of the placenta is prevented by the head pressing it against the uterine wall. The head acts as a tampon, and dilatation proceeds safely. The writer's method usually is to rupture the membranes at once, because the hemorrhage, even from a marginal insertion of the placenta, may be so severe that it jeopardizes the woman's life, or will cost her so much blood that in the subsequent manipulations, which may be attended with free bleeding, we find the patient already

exsanguinated and unable to bear the drain. The woman's reserve stock of blood has been extravagantly expended. Here the author sounds the key-note to the successful treatment of these cases. Save blood! If, on the advent of labor, or the arrival of the accoucheur, the hemorrhage is profuse or even moderate, radical and definitive measures to stop the flow must be instituted.

(a) If the cervix is completely dilated the child should be delivered at once—by forceps if the head is engaged, by version and extraction if the head is not engaged. This condition must be insisted on—the cervix must be fully dilated.

(b) If the cervix does not permit easy and safe extraction, the accoucheur has the choice of two methods: first, Braxton Hicks's version, and secondly, the use of the colpeurynter.

The first method was perfected by Braxton Hicks, though Wright in America described the maneuver several years before. The hand is inserted in the vagina, two fingers enter the cavity of the uterus, either through the membranes at the edge of the placenta or through the placenta itself, and aided by pressure from the abdomen the foot is grasped and led down into the vagina. The outside hand pushes up the head, while gentle traction is made on the foot till the breech of the baby is engaged in the lower uterine segment and cervix and so tampons the placenta tightly against its side. The baby acts as a plug, stopping the hemorrhage and inducing labor pains. Now the case is left to nature. Under no circumstances extract. The uterus itself must force out the child. Neglect of this advice has cost many women their lives, and the object of the attempt to rapidly deliver, namely, to save the child, has almost always been defeated by the attempt itself. You may lose a few more babies by waiting, but you will save more mothers.

This very high infant mortality it was that induced obstetricians to cast about for a method that would still save the mothers and yet give the babies more chance, and it was found by Maeurer and Dührssen in the Carl Brown colpeurynter. This balloon-shaped rubber bag, introduced inside the uterus on the placenta, is inflated with water, and then traction made on the tube. This traction brings

the distended bag down on the placenta, pressing it against the uterus, and acts similarly to the breech in the Braxton Hicks treatment. The bag stops the hemorrhage, evokes uterine action, and mechanically dilates the cervix. It is a precious addition to our armamentarium. After the bag is expelled by the uterine action the hand may be introduced, version performed, and followed by immediate traction, providing the cervix has been sufficiently prepared.

Which method you will select will depend on your experience and on the gravity of the case. If the woman has lost a great deal of blood you are bound to prevent further loss, and the quickest and most definitive method to meet the emergency is Braxton Hicks's version. You now have the case completely under control. If the case is beginning and the patient in good condition, you are bound to make an effort to save the child, and the rubber balloon, or the "metreurynter," will come in good service.

(c) In those cases in which the cervix is tightly closed so that both Braxton Hicks's version and the metreurynter are impossible, you may tampon the vagina firmly and wait for sufficient dilatation. For these cases Cæsarian section is proposed.

The treatment of the third stage, the placental stage. Many women die, after having been adroitly conducted through the first two stages of labor.

The same economy of blood should be practiced in the third stage. Save blood at all times. If the delivery of the child has been accomplished too rapidly, too early, or too forcibly, there will result lacerations more or less deep in the cervix. The warning, therefore, to deliver slowly and heedfully is not to be disregarded. Even a tiny cervical tear may give rise to a fatal bleeding.

When the child is delivered, as in Cæsarian section, it should be handed to a competent assistant, and the operator's attention be given wholly to the mother. Even a moderate hemorrhage now demands the immediate removal of the placenta. This is followed by brisk massage and a hot intra-uterine douche. The instruments for all complications must have been prepared beforehand. If the bleeding does not immediately cease the uterovaginal tract must be firmly packed

with a long strip of gauze. Gauze one-half yard wide and 13 yards long should be prepared for this purpose. The woman will now have no further hemorrhage, and means of combating the anemia may be instituted.

Should the uterus unfortunately have been ruptured, the rent is to be tamponed or sewed, from below if possible. Usually such a grave accident will demand laparotomy.

THE PHYSIOLOGY AND TREATMENT OF SURGICAL SHOCK AND COLLAPSE.

In the *Lancet* of April 1, 1905, MUMMERY at the close of a long paper on this subject reaches the following summary and conclusions:

Surgical shock is a condition produced by exhaustion of the vasomotor centers and the resulting great fall in blood-pressure. Collapse is a similar condition caused by lowering of the blood-pressure from hemorrhage or paralysis of the vasomotor centers. In surgical operations shock most frequently results from operations upon the abdomen, the most important factors in its causation being injury to, or exposure of, the peritoneum, the length of the operation, injury to organs richly supplied with nerve fibers, as the stomach, uterus, and kidneys, evisceration, and extensive and prolonged manipulations. In operation upon parts other than the abdomen the most important factors in causing shock are injury to large or important nerve trunks or injury to parts richly supplied with nerve endings, the area of the wound, the time of exposure of the tissues, and hemorrhage.

Another important factor in the causation of shock during surgical operations is the anesthetic. Ether and the C. E. mixture are the best anesthetics for cases where there is danger of shock, chloroform on account of the fall in blood-pressure which follows its administration being very unsuitable for such cases. The time occupied in performing the operation is always an important factor, more especially in children and old people. The condition of the patient prior to operation is important, especially as regards the condition of his nerve centers. In the treatment of shock stimulants, and especially strychnine, are absolutely contrain-

icated, as they tend to increase the severity of the condition and to retard recovery. Shock can be produced in an animal by the administration of strychnine alone, and it is as reasonable to treat shock by injections of strychnine as it would be to attempt to cure a dying horse by kicking it. The position with the head down and the foot of the bed raised is of considerable value in the treatment of shock, and should be more extensively used.

Compression of the abdomen either manually in an emergency or by the application of a tight abdominal binder is a most effectual method of treating shock in all cases. The establishment of an artificial peripheral resistance by the application of external pneumatic pressure affords an absolutely certain method of maintaining the blood-pressure, and though not at present a practical method should some day prove of great value. The intravenous infusion of salt solution or physiological serum will raise the blood-pressure in all degrees of shock. As a method of treatment in shock it is disappointing, as its action is fleeting and it cannot be continued indefinitely. In the collapse of severe hemorrhage it is effectual and lasting in its effects. The introduction of saline solution into the abdomen at the end of an abdominal operation is a valuable method of combating shock, and is not contraindicated by the presence of pus in the abdominal cavity.

One of the most effectual methods of treating shock that we possess is by the administration of drugs such as adrenalin and ergot, which raise the blood-pressure by increasing the peripheral resistance independently of the nerve centers. The treatment of shock by the administration of these drugs is as yet in its infancy, and only a small number of cases have so far been treated in this way. The experimental evidence is, however, very complete, and the few clinical cases where these drugs have been used are very encouraging. The use of these drugs instead of the stimulants which are now so popular, but which have been shown to be useless, will probably result in many lives being saved.

Like sepsis, shock can be prevented much more easily than it can be cured; and as is the case with sepsis, so with

shock—it is to the careful prevention of shock rather than to its treatment that we must look to get rid of this source of danger in the operations of the future. With the exception of abdominal operations the method of blocking the main nerves with cocaine seems to afford us a ready and most efficient way of completely preventing shock in even the most severe of surgical operations. Morphine, administered both before an operation and afterward, is a useful aid in the prevention of shock, and does not seem to have been used in this connection as much as it deserves to be. Much may be done to prevent shock by having a chart of the blood-pressure kept during all severe operations; procedures which are harmful may thus be avoided, treatment may be commenced at the time when it can be of most value, and, in fact, shock can be thus prevented or treated upon scientific lines.

The writer believes the best line of treatment in the event of shock occurring or threatening during an operation to be as follows: If the operation is an abdominal one the peritoneal cavity should be filled before being closed with physiological salt solution, and if a severe degree of shock is already present adrenalin should be added to this solution in the proportion of 1 in 40,000. Whether the operation be an abdominal one or not a firm, tight abdominal binder should be applied at the end of the operation, and in bad cases the limbs should, in addition, be firmly bandaged from the extremities upward. When the patient has been put back to bed the foot of the bed should be raised at least 12 inches on blocks, and all pillows should be removed from beneath the head; the patient should be kept warm, and some good form of nutrient enema should be administered, and repeated in a short time. No stimulants should be given. A hypodermic injection of aseptic ergot should be given at the earliest sign of shock, and repeated if any improvement in pulse tension follows its administration. Except where absolutely contraindicated an injection of morphine should be given at the end of the operation, whether pain be present or not; and if there is any restlessness afterward the morphine should be repeated. If, in spite of these measures, the blood-pressure remains low and the patient con-

tinues in a dangerous condition of shock, a solution of adrenalin in physiological salt solution in the proportion of 1 in 20,000 should be intravenously infused at a rate of about three to five cubic centimeters per minute. The intravenous infusion should be continued until on stopping it the blood-pressure is found to remain at a safe level. In bad cases it may be necessary to continue the infusion of adrenalin for a long period, but it affords a certain method of maintaining the patient's blood-pressure and therefore his life.

In collapse following severe hemorrhage intravenous infusion with physiological salt solution should be performed as soon as possible. The amount of fluid introduced into the veins should be as nearly as possible equal to the amount of blood lost. The subsequent treatment should be the same as for shock. In all forms of sudden collapse, including the collapse of chloroform poisoning, the intravenous administration of adrenalin is of immense value in assisting to restore the patient's life. This drug, by raising artificially the blood-pressure, allows the heart and the vital nerve centers to resume their functions very easily. It should prove of great value in resuscitating drowned persons and in other similar emergencies.

ADRENALIN.

The *Birmingham Medical Review* for March, 1905, contains an article by LLOYD-OWEN on ophthalmic therapeutics. In its course he says a substance which has of late attracted immense attention, as a modifier of vascular conditions, is the suprarenal extract and its active principle, adrenalin. The suprarenal capsules supply an internal secretion which seems to have the power of exciting muscular contractility and affecting especially the heart muscle and the muscular walls of the blood-vessels. The extract acts as a vasoconstrictor, and causes a temporary increase of blood-pressure by acting at the periphery upon the smooth fibers and nerve endings. This effect appears to be due to the adrenalin, as the active principle is called by Takamine, of New York, its discoverer. Its exact chemical constitution is not known; but it possesses remarkable and, apparently, constant quali-

ties as an astringent and hemostatic. It is, as we all know, being greatly used in other branches of medical practice, and in the treatment of eye diseases it has a distinct and definite value. It is but right to say, however, that its usefulness and value have been unduly exaggerated. When it first appeared all sorts of wonderful, almost magical, effects were claimed for it; but clinical observation is gradually assigning it to its proper sphere, within which it is a trustworthy agent. It is of use as a diagnostic and as a remedy. It is useful as a means of discrimination in inflammations of the eye; for example, when an eye is greatly inflamed, it may be necessary to differentiate between superficial and deep hyperemia. If the hyperemia be superficial—that is, only conjunctival—the instillation of a drop of the standard solution (1:1000) will in a very short time so contract the vessels of the conjunctiva that the membrane will become practically bloodless; and if the sclera show white and clear beneath it, it will be made manifest that conjunctival trouble only has to be dealt with. But if, in addition to the conjunctival hyperemia, there should be a ciliary zone of redness, which marks the deep scleral injection of iritis or iridocyclitis, we shall see the superficial (conjunctival) redness disappear, and the deep redness remain for a long time, perhaps altogether unaltered. In diagnosis this action may be most valuable.

As a remedy, adrenalin is valuable in conjunctivitis, phlyctenular keratitis, and superficial corneal ulcers and wounds. It may be used alone, or with cocaine, or with cocaine and atropine, and if necessary the sulphate or chloride of zinc, or an organic salt of silver, or the perchloride or cyanide of mercury may be added to it. In deeper troubles, such as episcleritis and iritis, it assists the action of cocaine and atropine by its vasoconstrictor power, and it also seems to have some influence in assuaging ciliary pain. In increased tension, when used with eserine or pilocarpine, it helps their action in marked degree, for it has been shown by conclusive experiment that it reduces intraocular pressure. Lastly, in operations about the eyelids and conjunctiva, and in tenotomy for strabismus, it is of great temporary value as a hemostatic. But where its vasoconstrictor power is

sought it must always be borne in mind that reaction after its use is very marked, and so the temporary anemia is often followed by increased vascularity, or by hemorrhage from the relaxed, divided vessels.

From an extended and careful personal observation of the uses of adrenalin the author asserts that its most trustworthy influence is exerted as a help in diagnosis, and in superficial operations on the eyeball and eyelids. In treatment of diseases, it is a useful adjunct in inflammations of the anterior portion of the globe; but it is not a remedy to be trusted to alone.

HEPATIC INSUFFICIENCY IN OBSTETRIC PRACTICE.

In the *Journal of the American Medical Association* of April 8, 1905, EDGAR writes on this topic. He concludes that the preventive treatment of much of the morbidity and mortality of pregnancy and of the puerperium depends on the early recognition of the autotoxemia of pregnancy, as it shows itself in the clinical picture of hepatic insufficiency.

No one who has had an extensive obstetric experience can fail to observe that a large number of pregnancies are really pathologic in their nature.

That a specific toxemia of pregnancy exists will probably soon be admitted on all sides. It is, of course, very easy to attribute to the autotoxic state certain symptoms of the pregnant woman which proceed from other sources; and it is by no means impossible that pregnancy may predispose to more than one toxic condition. In any case, however, the presence of the hepatic toxemia must be borne in mind—whether it be the principal state or accessory to other facts.

Our present knowledge of the pregnant state demands that women at this time should be constantly under the observation of a competent physician. Pregnancy cannot be treated through the mails or over the telephone.

It is not enough that a monthly or bi-monthly examination of the urine be made for symptoms of hepatic or of renal insufficiency, as such urinary analysis often fails completely to indicate the presence of toxemia.

A pregnant woman should be seen frequently by her physician and watched for

general symptoms of the overcharging of the blood with toxic material, such as nausea and vomiting, headache, physical and mental lassitude, high arterial tension, alterations in character and disposition.

Thus, and thus only, shall the physician do his whole duty by his patient.

ETHYL CHLORIDE—A WORD OF WARNING.

The *British Journal of Children's Diseases* for April, 1905, calls attention in an editorial to the fact that at a recent meeting of the Society of Anesthetists several fatalities were reported during the administration of ethyl chloride. Last June this journal published a paper read by Mr. Chaldecott before the Society for the Study of Disease in Children on the use of ethyl chloride as a general anesthetic, in which, after attention had been drawn to the many advantages of the drug, and to the cases for which it was most suitable, it was very clearly laid down that the agent in question is a very powerful anesthetic and should only, except under circumstances of extreme urgency, be administered to patients who have been properly prepared. Since that time, however, ethyl chloride has attained a very wide-spread popularity, and owing doubtless to the ease with which complete anesthesia may be induced by its use, there is considerable risk of its being employed in a haphazard fashion and in unsuitable cases. It is not suggested that any of the reported fatalities were due to either of these causes, but their occurrence certainly proves that its administration is not by any means free from danger to life.

As suggested at the meeting of the Society of Anesthetists, there are several precautions which should be observed: (1) the patient should be prepared as for chloroform or ether; (2) care should be taken not to present at first too large a dose; (3) a prop should always be inserted between the teeth; (4) the patient should be allowed to rest for some time after administration, as faintness occasionally supervenes, especially when a large dose has been given; (5) the drug should not be sprayed directly upon the mask close to the patient's face.

There can be no doubt that the introduction of chloride of ethyl as a general anesthetic is a very important innovation, especially valuable in the case of children, and it would be a matter for regret if the drug were to fall into disrepute through accident caused by disregarding such dangers as must inevitably attend the administration of so powerful and rapid an anesthetic agent.

THE TREATMENT OF SCALP RINGWORM.

A practical paper on this subject is contributed by Fox to the *Practitioner* for April, 1905. He states that at the first inspection attention should be directed to the existence of any patches on the smooth skin, to possible implication of the nails—a rare complication in this country—and particularly to the distribution of the disease in the scalp. The child should be placed in a good light, and the hairs of the scalp turned over against their set in different parts by the blade of a pair of forceps, or the deft use of the fingers. A practitioner must be hopelessly at sea if he is unable to recognize with the eye not only the diseased stumps in obvious patches of disease, but also those occurring in less significant areas, and even isolated. In most of the cases first seen the classical symptoms have been altered by treatment, and the one unfailing resource is the recognition of diseased stumps.

The extent to which cutting hair in preparation for treatment is carried out must depend on the distribution and extent of the ringworm present, and the age, circumstances, and surroundings of the patient. Removal of the hair over the whole head is most satisfactory for treatment and for observation, and for the prevention of autoinoculation. The scalp can be shaved under antiseptic conditions, but the writer prefers to keep the hair clipped to the length of about half an inch, so as to command a survey of the whole scalp, yet allow a distinction to be drawn between healthy and diseased hairs, and facilitate cleanliness and general preventive treatment.

Mark out the diseased areas, taking special care to locate any tiny commencing spots, by painting with an iodine solution, or an aniline pencil. These areas must never be lost sight of again, as so

frequently results from washing, etc., lest little commencing patches make headway, and single stumps remain uncured about the head. In France it has been customary to epilate a zone of healthy hairs around all diseased areas, big and little; but this proceeding is irksome in many cases and unnecessary.

If we cannot destroy the fungus *in situ*, can we remove the diseased hairs bag and baggage? A temporary cessation of growth with fall of the hair has exceptionally resulted from the continuous application of a saturated solution of boric acid in methylated spirit and ether, and from the use of gas water (Aldersmith). Such happy effects, however, cannot be relied on. Then the simple plan suggests itself of carefully pulling out (epilating) all the diseased hairs, which is satisfactory with the less fragile hair of favus infection. Various plans have been in vogue, from the barbarous old wholesale method by the calotte to the modern detailed plan by forceps. In most cases and most stages of ringworm, however, the extreme fragility of the diseased hair makes this treatment futile, for the hairs break and grow up again as diseased as before. Nevertheless, the author here insists that epilation sometimes proves an invaluable aid to cure. When the hairs become loosened in the course of treatment they can sometimes be readily and painlessly extracted entire, often with the root-sheath adhering. It is the writer's custom to invariably try this proceeding from time to time. It requires a practiced hand, and demands the time and patience which so many practitioners grudge. It is a common practice to forcibly remove a dried crust, and so bring away the diseased stumps; but a large proportion are almost always broken off.

Coster's iodine and tar pigment is very useful. Criticisms on it made by the writer are that it is too strong for some vulnerable children, and that ulceration and scarring may take place under the adherent black crust. Similar well-known pigments are those suggested by Toulmin Smith and Marrant Baker and Illingworth (hydrargyrum iodidum rubrum gr. iv-xv, solutio sodii iodid. (1 in 4) q. s., spiritus chloroformi f3ij-f3iv, aq. ad f3j).

Sheffield's Treatment.—Apply to the

entire scalp, and more thickly to diseased patches—by means of a painter's brush—once a day, for five successive days, the following preparation: Acid. carbolic, olei petrolei, \AA 65.0; tinct. iodidi, ol. ricini, \AA 100.0; ol. rusci (German), q. s. ad 500.0. On the sixth day wipe off with rag dipped in plain oil, clip the hair again, wash thoroughly with green soap and soft nail-brush, remove all scales and loose hair. On the seventh day reapply as before. When the new hair grows, apply for a few days 10-per-cent sulphur ointment, and finally, for two weeks, resorcin, acid. salicylici, \AA 16.0; alcoholis, 120.0; olei ricini, ad 500.0. Sheffield claimed marvelous results, which it has not fallen to the author's lot to confirm. The application is dirty.

Frazer's Izal Treatment.—(1) Wash the scalp thoroughly with soft soap to which 5-per-cent carbolic acid has been added, and thoroughly rinse away. (2) Take a pledget of absorbent wool dipped in Waugh's purified benzine (turpentine is too irritating), and thoroughly cleanse the patches from grease. (3) Rub in commercial izal oil to each patch with a stiff, short-bristled brush, preventing the oil running on to healthy skin; stop the rubbing when frothiness is manifested; dry the patch with wool or blotting-paper. (4) Repeat 1, 2, 3 every third day for each separate patch. Dr. Frazer, of Romford, kindly recommended this treatment to the author some years ago. It is decidedly useful in certain children who react easily, but has often failed.

Foulis's Treatment.—(1) Rub in spirits of turpentine to the patches for several minutes until it hurts. (2) Then rub with 10-per-cent carbolic soap, and then use warm water to make a lather. (3) Dry with a towel, and apply two or three coats of tincture of iodine to the patches. (4) When dry, rub carbolized oil (1 in 20) over the head. This treatment is to be carried out night and morning. Dr. James Foulis claimed surprising results, but this treatment has disappointed the writer.

These treatments fail to cope effectually with any single isolated stumps that may exist.

Chrysarobin treatment is undoubtedly useful, and it can be applied in any strength adapted to excite the requisite inflammation in the particular child. The

writer does not think it necessary to refer to the various methods of application such as are used also in psoriasis. Chrysarobin has many disadvantages. It is dirty and staining, and apt to get on the face and other parts and set up inflammation.

Formalin treatment has been greatly disappointing in the author's hands. It is painful, it tends to set up an eczematous type of inflammation which is useless, and its action must be very carefully confined to definite patches.

Of ointments which set up a desirable grade of inflammation without pus formation, the two he considers the best are the following:

R Cupri oleatis, 3j-5v;
Olei amygdal., 3ij-3iij;
Adipis Lanæ hydrosi, q. s. ad 3j.

M. ft. ung.

If oleic acid be used in its composition, a more irritating effect is produced. Chrysarobin gr. xx may be added.

R Hydrarg. oleatis absoluti (Corbyn),
3ij-3ijss;
Adipis Lanæ hydrosi, 3jss-3ij;
Acid. oleci, ad 3j.

M. ft. ung.

These ointments can be progressively increased in strength, and more and more vigorously and frequently applied until the desired effect is produced. They are, however, far from being thoroughly reliable. Crusts must not be allowed to form.

THE TREATMENT OF COMPLICATIONS OF DIPHThERIA.

NASH writes an essay on the therapy of diphtheria in the *Practitioner* for April, 1905. He believes that complications are rarely if ever seen in cases treated early with proper doses of reliable antitoxin. If no delay has occurred in seeking reliable medical advice, diphtheria ought to be an almost non-fatal disease. But where delay or mismanagement has allowed the golden opportunity to pass, the well-known complications of diphtheria may all still be met with.

For the various forms of paralysis no treatment compares with large medicinal doses of strychnine. If there is a threatening of cardiac failure, absolute rest in bed must necessarily be enjoined.

The writer does not advocate the use of digitalis unless the pulse is very rapid. Digitalis is apt to upset the digestive organs; moreover, it is of questionable value in any case in diphtheria. Not so with strychnine, which is of high value as a heart supporter as well as a general nerve tonic. Strychnine also tends to arrest any constipating action of the iron so freely prescribed in diphtheria.

Strychnine has a great affinity for nerve cells, more especially the motor centers; also the respiratory center, the cardiac center, and the vasomotor center. These are the very parts which are attacked by the diphtheria toxins with a directly opposite effect. Hence in many ways strychnine is a direct physiological antagonist of diphtheria toxins, and is, in the writer's opinion, more successful even than diphtheria antitoxin in neutralizing those diphtheria toxins which have already entered into combination with the nerve cells.

Except in those instances where diphtheria begins as an intralaryngeal affection, it is comparatively rare to meet with laryngeal complications in these days of enlightened treatment. Hence the occasions for resorting to tracheotomy for the relief of laryngeal obstruction are less frequent. Personally, although the writer has treated nearly 200 cases of diphtheria during the last four years (including a few laryngeal cases), he has not had to resort to tracheotomy in a single instance. Large and repeated doses of antitoxin, with the temporary use of a steam tent, have hitherto speedily relieved obstruction in a few hours, even when there had been marked retraction of the intercostals and epigastrium, with the other well-known croupy symptoms. In the writer's opinion, tracheotomy ought never to be performed until time has been given for the effects of antitoxin to be exercised, unless the case is so desperate that it is only a question of a few minutes before suffocation must ensue.

The writer has had no experience of intubation as an alternative to tracheotomy. *Prima facie* intubation would appear to be preferable, if one or the other was absolutely imperative, because a cutting operation, which is sometimes difficult or awkward, is thereby avoided; but intubation requires a very consider-

able amount of manipulative skill, which can hardly be acquired by a general practitioner with very rare opportunities of practicing the operation. Nasal feeding is occasionally required in the severer cases of pharyngeal diphtheria.

Rhinitis is a frequent complication of diphtheria. It is indeed so frequent that nasal discharge may be looked for in at least 75 per cent of severe cases. Occasionally the nasal septum and the post-nasal fossæ are the seat of the affection, while the pharynx may be unaffected. These nasal cases of diphtheria are of supreme importance, but unfortunately are often overlooked. In any case of sore throat it should be made an invariable custom to inquire into the condition of the nose. A nasal discharge or an excoriated nostril is extremely suspicious.

In every case of diphtheria affecting the air-passages, it is wise to institute four- or six-hourly antiseptic douchings of the nasal and pharyngeal passages. It is advantageous to ring the changes on such solutions as hydrarg. perchlor., 1:1000; lysol, 2-per-cent; formalin, $\frac{1}{2}$ -per-cent; permanganate of potash, etc. A useful method at times is a nebulizing spray. A solution of menthol in toluol and alcohol can be conveniently used with a nebulizer. Loeffler's solution is: Menthol, 10 grm.; toluol, 36 Cc.; liq. ferri sesquichlorat., 4 Cc.; abs. alcohol, 60 Cc.

DIET IN NEPHRITIS.

JACKSON states his views on this subject in the *Boston Medical and Surgical Journal* of April 6, 1905. In the course of his remarks he brings forward modern views, and says that as we have a diseased individual to care for, all strain on the digestive apparatus must be removed. The diet must be devoid of all irritating substances, as pepper, mustard, and similar condiments. Recent studies, especially by French observers, have shown experimentally that salt is excreted with difficulty by the diseased kidney, and that its withdrawal often has a marked effect upon the amount of the edema. Rich meat broths are to be forbidden. The kind of meat chosen is not of importance, provided the variety decided upon agrees with the individual. Recent investigations of Von Noorden and others have

shown that chemically the red meats do not differ essentially from the white meats. The exact chemical researches, therefore, of the recent investigators show the wisdom of many clinicians who have for years advocated the careful use of meat in nephritis, irrespective of the color of the meat.

In acute nephritis the diet must be cut down to the smallest amount compatible with the maintenance of a fair degree of bodily strength; the patient must live upon a diet suitable for an acute febrile disease; in chronic nephritis the diet must be limited to the quantity required to maintain so far as may be a proper equilibrium. All excess is to be avoided.

The great nutritive value of fats must always be remembered, and our patients induced to eat as much fresh butter and cream as their digestion warrants.

In bare outline a proper diet may be suggested as follows:

Breakfast: Cereal with cream, egg, bread and butter. Very weak coffee with much cream, fruit, glass of milk. Dinner (preferably in midday): One ladleful soup, little fish, one slice meat, one vegetable. Dessert: Essentially fruits; "simple" children's puddings may be taken as desired. Supper: Cold meat, broiled fish, bread and butter, milk.

Where the condition is not good, milk in the forenoon and at bedtime is indicated. Kumiss has, in the author's hands, rendered very material service.

It is his experience that in cases of this class the exhibition of a considerable quantity of water, especially alkaline waters, is of value. Since the publication of Von Noorden's work on the subject the author has made trial of reducing fluids, and his results have not been favorable.

We then have to consider another clinical type, cases that are probably of the pure interstitial type; cases that secrete a large amount of water, and in which an occasional cast is found in the sediment. In these cases we usually have still greater doubt as to the diagnosis than in the cases where we suspect chronic diffuse nephritis.

In young people the diagnosis is comparatively easy, but who can diagnose in the elderly person the condition of the kidney when we accidentally find a trace of albumin and a few casts? Or, rather,

it is not as to the diagnosis of the pathological condition of the kidney, as in either case we have essentially changes in the interstitial tissue, but the prognosis. One person lives for years without untoward symptoms suggestive of kidney failure; the other has acute disturbance, and death. The author thinks the diet may be expressed in a simple, nourishing diet, moderate in quantity and quality; avoidance of all stimulating articles, no wine or liquor. Often the kidney lesion is entirely in abeyance in importance to the cardiac or other complications that accompany, result from, or cause the renal condition, and the last sentence is not too loose as expressive of our knowledge of the relation of arteriosclerosis, interstitial disease of the kidney, and degeneration of the myocardium.

OBSERVATIONS ON THE DIAGNOSIS AND TREATMENT OF HERPES ZOSTER.

To the *New York Medical Journal* of June 17, 1905, ROBINSON contributes a paper, at the close of which he recommends the following plan of treatment:

Rest, attention to the general nutrition of the body, the combating of microbes, the application of cold over the affected ganglia, a coal-tar preparation for the toxemia, and codeine and bromide of potassium for pain not controlled by the antipyrin. Local treatment consists in aseptic and antiseptic measures. If the case is seen at a very early stage, the affected area can be disinfected in the usual manner by soap and alcohol and then painted with flexible collodion, and when convenient an antiseptic gauze applied. If seen later, when vesicles are changing in color, an ointment of boric acid and bismuth subnitrate, and avoidance of soap and water, meet the indications. Later ichthyol can be added to the ointment, or an antiparasitic preparation, as the ammoniated chloride of mercury ointment with rose ointment, to which bismuth may be added, and also ichthyol.

For the persistent neuralgias following zoster, anodynes and the faradic current or x-ray may be of some curative value, but on account of probable structural changes in the nerves and connective tissue of the ganglia the condi-

tion is very rebellious to usual methods of treatment for neuralgia. Tonics, such as phosphide of zinc, and alteratives, such as arsenic, are also recommended.

HYPOCHLORIZATION IN EPILEPSY.

In a report on the hypochlorization method of treatment of epilepsy MORTON concludes as follows:

The hypochlorization method controls the convulsions, requiring only about one-half the amount of bromide usually given.

It has little or no effect on the general nutrition of the patient.

It is apt to cause constipation.

It does not furnish enough salt to satisfy the patients' craving.

It may be used with success with intelligent patients.

It is practically useless in the middle grade of epileptics, as they have neither the desire nor the will-power to carry it out properly.

A modified salt-poor diet, in which about equal parts of sodium chloride and sodium bromide are used in the food, may be used to advantage with idiotic and demented patients if their diet can be controlled absolutely.

Bromism is comparatively rare.—*Boston Medical and Surgical Journal*, June 17, 1905.

THE ABUSE OF PURGATION BEFORE AND AFTER OPERATION.

An article with the above title is contributed by STONE to *American Medicine* of February 25, 1905, in which the author reaches the following conclusions:

Excessive purgation should be restricted, since it is enervating to the general system. It produces great irritation to the mucous lining of the bowel. It may add to some of the dangers we are most anxious to avoid—ileus and paresis. Purgatives have very little effect in limiting the amount of extra-peritoneal exudate and fluids. Instead of calomel and saline purgation, bland evacuates such as castor-oil should be used before abdominal section. In weak patients the use of suitable bland non-fermentative foods is desirable until just before operation. After operation peristalsis should be limited; only small

quantities of food and drink should be administered by the mouth. Opium should be given rarely. Enemata should be administered to relieve distention and aid peristalsis in the downward direction. After normal peristalsis is established laxatives may be given as required.

THE TREATMENT OF BUNIONS.

PLUMMER (*New York and Philadelphia Medical Journal*, March 11, 1905) treats bunions by making his patient wear right and left stockings and a shoe which has the inner edge perfectly straight. The bunion is bathed night and morning in four-per-cent solution of carbolic acid for a few minutes, followed by plain water. If after several weeks the bursa is still distended with fluid it is aspirated. If the bunion is due to flatfoot, the arch of the foot must be restored by a plate. When the joints are enlarged because of gout or rheumatism the constitutional conditions must be treated. In other cases osteotomy and tenotomy are required.

POSTOPERATIVE GASTRIC PARALYSIS.

REYNIER (*Annals of Gynecology and Pediatrics*, February, 1905) notes that after performing nephropexy he found two days after operation a tumor in the abdomen which gave him the impression of being a cyst of an ovary, but upon further investigation he found it to be a distended paralyzed stomach. He finds that gastric paralysis occurs in many patients after operation, though it may be so slight as to pass unnoticed. These paralyzes occasionally cause a small, frequent pulse, abdominal distention, hic-cough, expectoration of blackish material, and facies of the peritoneal type. As soon as the condition is determined, gastric lavage should be performed.

HERPES ZOSTER TREATED BY ETHYL CHLORIDE.

MORROW (*Journal of Cutaneous Diseases*, April, 1905) advises for the severe pain of herpes zoster antipyrin in large quantities, given regularly, and mild galvanic currents, as giving most benefit for the neuralgia which so frequently follows the eruption. For the agonizing

pain which often accompanies the eruption, ethyl chloride often acts excellently. An area the size of a dollar is frozen at the point where the nerve emerges from the spinal column. Although this usually relieves the pain along the entire nerve, it is better to freeze areas where the pain is localized. Treatment may be repeated if needful, and from the reported cases seems most efficacious.

PROSTATIC CANCER—DIAGNOSIS.

The frequency of this condition is insisted on by LEGUEU (*Journal de Médecine et de Chirurgie Pratiques*, March 10, 1905), who gives the points of difference from hypertrophy as follows: The pain is more severe and constant, and there is less mechanical interference with urination than in hypertrophy. Hemorrhage occurs intermittently in all cases, but in very variable amount. The pain is apt to radiate into the sciatic nerve, but is constant in the perineum. Interference with defecation is generally more marked than with urination. On examination the wood-like hardness of the gland is pathognomonic. The tumor is very malignant and emaciation rapid. Operation is never complete, and is therefore inadvisable.

UNDUE RENAL MOBILITY AND ITS TREATMENT.

BARLING (*Birmingham Medical Review*, March, 1905) considers that a kidney is unduly movable only when in a spare person the organ can be grasped between the two hands and retained when a deep inspiration is taken. The author considers undue renal movement common, especially in females. He makes the examination with the patient in the dorsal posture, and the thighs held in a flexed position by an assistant.

The author's experience with abdominal belts in the treatment of this disease has not been satisfactory, but these should be tried before operation is resorted to. The patient is instructed to adjust the belt in the morning before rising, after first making sure that the kidney is in good position. Where renal crises occur with hydronephrosis, frequent micturition, and occasional hematuria, and even in cases where there is dragging, discom-

fort, weariness, and inability to walk any distance or indulge in any considerable exertion, operation is called for. As a rule neurasthenics are undesirable people for operation, but if this nervous affection is considered to be due to a movable kidney which cannot be kept in place by abdominal support, nephrorrhaphy should be performed. There are a half-dozen different methods of operating, each of which is trustworthy, but, as a rule, the author prefers Goelet's. He modifies this method by decapsulating the upper half of the kidney, and thus secures firmer adhesions.

INTESTINAL PERFORATION COMPLICATING TYPHOID FEVER.

After reporting twelve cases which have occurred in his own practice in the last twenty-one months, HAYS (*Journal of the American Medical Association*, April 22, 1905) summarizes his views in reference to treatment. This in every case should be operative and should be carried out early, unless there is great lowering of temperature, when time should be given for reaction. If done within six hours the mortality is only 50 per cent. The perforation is closed by a purse-string suture, over which two or three tiers of continuous Lembert sutures of silk are introduced transversely to the long axis of the bowel. In several cases he has anchored the bowel at the site of the perforation to the peritoneum at the upper angle of the abdominal incision in such a way that all the sutures in the perforation are extraperitoneal. This prevents the portion of the bowel which was perforated from returning to its normal place in the abdominal cavity, where it will be surrounded by peritoneum which is highly inflamed and which may result in pulling out of the stitches or acute obstruction. Should the sutures tear out the contents of the bowels will flow outside of the abdomen. An artificial anus can be easily made should obstruction develop. The toilet of the peritoneal cavity is important. Every portion of the greater peritoneal cavity should be thoroughly flushed with normal salt solution until the fluid comes out clear. A large glass drainage-tube should be inserted to the bottom of the pelvis and the patient placed in Fowler's position.

SURGERY OF THE POSTERIOR MEDIASTINUM.

FAURE (*Bulletin of the Johns Hopkins Hospital*, April, 1905) describes his operation in the posterior mediastinum after having pointed out that previously nothing further had been accomplished in the way of operation upon this cavity than mere incision of the esophagus or bronchi through an opening either by resection of the ribs posteriorly or by way of the abdomen through the diaphragm. Faure's operation was the extirpation of a cancerous esophagus. This he did in two patients. Both of these patients died after twenty-four hours by what appeared to be slow suffocation, incident to penetration of the mediastinum by air, through a large drain which had been left in this cavity, and the production of an extrapleural pneumothorax. The author thinks this can be avoided by omitting the drain.

Although he does not describe the operation in all its details, he says that in addition to resecting a sufficient number of ribs at the upper part of the thorax posteriorly it is essential to either resect or divide the first rib. If this is not done the shoulder cannot be sufficiently drawn forward, nor can the chest be adequately opened up. When the first rib is cut the posterior mediastinum opens like a book, and, after detaching the pleura and the apex of the lung, the structures of the posterior mediastinum can be easily reached. In pushing the shoulder forward care must be exerted not to wrench the roots of the brachial plexus.

CHRONIC CONSTIPATION AND ITS SURGICAL TREATMENT.

LANE (*British Medical Journal*, April 1, 1905) discusses the causes and symptoms of chronic constipation, and after referring to its medical treatment concludes his article by a consideration of the surgical treatment. When medical treatment has failed it becomes a question of an attempt to liberate intestinal constriction by division of bands or adhesions when due to this cause, or by the establishment of direct continuity between the lower end of the ileum and the termination of the large bowel. His experience is that while the former method often brings about considerable alleviation in

men, it is better as a rule in women to carry out the latter procedure. Lane divides the ileum 6 to 8 inches from the cæcum, and connects the proximal end with the sigmoid or with the rectum, provided the latter forms a more suitable site for implantation. The operation is extremely simple and the results excellent, provided adhesions of the small intestine and considerable dilatation of the stomach are not present. He urges the importance of operation at an early period, since the benefits vary inversely with the length of time during which constipation has existed. The author says that in his experience the objection to the operation on the ground that the patient will be affected by persistent chronic diarrhea is not sustained.

AN EFFICIENT AND PAINLESS METHOD OF SKIN-GRAFTING.

CAFFEE (*Indiana Medical Journal*, March, 1905) describes a method of skin-grafting which is painless, hence can be done without anesthesia, but which cannot be used for covering large areas at once, and requires a wound which has growing integument at its periphery from which the grafts may be taken.

The surface is first prepared by frequent dressings. The granulations should be firm and healthy. A moderate amount of suppuration is no absolute bar to the operation, as a certain amount of exudation indicates a good blood-supply. Just before transferring the grafts the wound surface may be gently curetted, or the granulations shaved down with a sharp scalpel. The bleeding is arrested by firm pressure for a few minutes. A strip is then detached from the margin of the wound with the aid of a needle and a very small pair of scissors. This is cut into segments about one-fourth inch in length, and these are carefully placed in a row about one-half inch from the wound margin. Strips of gutta-percha protective are then arranged in the usual lattice formation to protect the grafts and still allow free drainage, and over this is applied gauze. If the exudation is abundant a wet dressing of Thiersch's "boro-salicylic acid solution" may be applied. If, however, this is not excessive, a dry dressing is used. The rubber strips are left undisturbed for five days.

TUBERCULOUS TESTICLE AND THE X-RAY.

DE GARMO (*Medical Record*, April 15, 1905) reports what he thinks is the pioneer case of tuberculosis of the testicle successfully treated by the x-ray. The patient was a robust man, aged fifty-six, who had always enjoyed good health. He had gonorrhea twenty-five years previously, but denied syphilitic infection. For the past five years the left testicle gradually increased in size and was the seat of considerable pain. During the last eighteen months there was gradual decrease in weight. The testicle was the size of an orange, hard, nodular, and tender to pressure. After several months' delay the patient consented to removal of the testicle, which was done, and on examination it was found to be tuberculous. About two months later the right testicle became involved. The patient refused to have it removed, and the x-ray was applied by Dr. Carpenter. When treatment was begun the testicle was several times its normal size and had the clinical appearance of tuberculosis. One hundred and twenty-six treatments of ten minutes each were given within a period of ten months. A medium tube was used at about 10 inches. The first application relieved the pain. Swelling and tenderness gradually subsided, until at the last treatment the testicle was in a "normal condition."

DEATH FROM PRESSURE ON THE PORTAL VEIN.

A very interesting suggestion is made by E. VILLARD (*Lyon Médicale*, vol. civ, No. 13) in connection with operations on and near the biliary passages.

After remarking that ligation of the portal vein, in animals, leads rapidly to death with symptoms of internal hemorrhage and shock, he reports three cases in which pressure on the portal led to similar symptoms. Two of these were due to tampons of gauze used to prevent hemorrhage after cutting adhesions around the bile-ducts, both patients showing the usual symptoms of internal hemorrhage about three hours later. One case died, and autopsy showed congestion of viscera but no hemorrhage; the other recovered promptly when the gauze was removed. The third case occurred dur-

ing an operation on the pancreas, in which the vein was twisted by displacement of the stomach. The pulse and respiration became normal rapidly when the stomach was replaced. The author warns against firm compression in this neighborhood.

TREATMENT OF GONORRHEA.

VALENTINE and TOWNSEND (*Indiana Medical Journal*, March, 1905) say they have used the expectant treatment of gonorrhea, consisting in putting the patient to bed, giving low diet, and dressing the glans in cotton soaked in boric acid, in five cases with absolute failure. Topical application of strong antiseptics, the so-called abortive treatment, is inadvisable, since any application strong enough to destroy the gonococci will at the same time destroy the urethra, and since it furthermore carries both the infection and the drug to uninvolved areas. Soluble bougies are condemned on the ground that they do not keep the drug with which they are charged in prolonged contact with the mucosa, and because as they melt they decrease in size and disturb the continuity of contact.

They have obtained no good results by internal medication with the balsamics, methylene blue, or antacids. They believe it better to reduce the irritating quality of the urine by large draughts of water than by the use of alkalies.

Syringe injections are without value, since sufficient pressure cannot be applied to unfold the urethral plications in which the gonococci are left to multiply. No good is to be expected of combined internal medication and injections.

Finally, after answering the common objections to the irrigation method the authors uphold it as the only one that is efficacious. As to the solution and the strength of it to be employed, this question can be answered only after consideration of each individual case. They give the preference to potassium permanganate as an antiseptic. The most important conditions which render irrigations ineffective and the methods of coping with them are as follows:

1. When urethral infiltrations or stricture remain as residua of previous gonorrhea, they must be dilated or cut to render irrigations effective.

2. When the crypts, glands, or fol-

icles are invaded, they must be treated or destroyed, after the acute manifestations have been conquered.

3. When the prostate or seminal vesicles are involved, they must be massaged or stripped at the necessary intervals, in addition to the irrigations.

4. When the general condition of the patient is deteriorated, it must be built up sufficiently to invoke normal resistance, otherwise irrigations will prove as ineffective as other treatment would in any other disease.

CHRONIC CONSTIPATION DUE TO INVAGINATION OF THE SIGMOID INTO THE RECTUM—ITS SURGICAL TREATMENT.

GANT (*American Journal of Surgery*, April, 1905) says that constipation from invagination of the sigmoid and upper rectum into the ampulla occurs far more frequently than is generally supposed. It is noted chiefly in adults and in the female. This invagination may be due to an abnormally long sigmoid or an elongated mesentery, or to any condition which excites frequent or straining efforts at defecation. The earliest symptom is imperfect and unsatisfactory bowel movements which do not relieve the desire to defecate. As a result of prolonged irritation and catarrh, ulceration of the sigmoid and rectum is produced. Autointoxication is common.

For the purpose of diagnosis a digital and proctoscopic examination should be made.

In rare cases the condition may be relieved by massage, mechanical vibration, and electricity, and treatment of the catarrhal inflammation by means of topical applications, sprays, and irrigations. The shortest and quickest method of treatment is colopexy. The writer has performed this operation twenty-five times, and in most cases the results were satisfactory. The operation requires only ten or fifteen minutes and is accompanied by very little shock. The abdomen is opened through an incision three inches long either in the median line or midway between the linea alba and the anterior superior iliac spine, the upper angle of the incision being below the transverse umbilical line. The sigmoid is drawn up out of the pelvis until

it is taut. The surface of the gut is then scarified over an area two inches in length. Three to five silk or fine chromicized catgut sutures are passed through the entire thickness of the abdominal wall on one side of the incision, taking a broad bite of the musculature of the bowel, and out through the abdominal wall on the other side of the incision. The abdominal wound is then closed and the sutures through the sigmoid tied, thus suspending the sigmoid to the abdominal wall. The patients are placed on fluid diet, and the bowels kept quiescent for the first week, after which the amount of food is increased and the bowel allowed to act at least every other day. On the tenth day the patient may go about the room, and at the end of the second or third week may be discharged from the hospital, though the catarrhal condition may demand further treatment.

HERNIA—STENOSES LONG AFTER REDUCTION.

The stenoses of the intestine occurring after reduction of incarcerated hernias are divided by MEYER (*Deutsche Zeitschrift für klinische Chirurgie*, vol. lxxvi, Bd. 4) into (1) continuance of preëxisting obstruction, and (2) stenoses arising after reduction. Only the latter are considered in the paper, which gives a complete review of the literature, tabulating 23 cases, 10 of which showed true ring form stenosis and 13 obstruction due to adhesions between intestinal loops. Clinically these two groups are indistinguishable.

In these cases the hernias were generally unreduced for a long time and incarcerated for twelve hours or more; prolonged taxis had generally been made, or the intestines had been found adherent, inflamed, or necrotic at operation.

The stenosis was in a ring at either or both constricted points, or in a long canal in the afferent part of the loop. The pathogenesis is somewhat obscure, but is probably the same as that of hemorrhage occurring under the same conditions, which is due to: (1) Capillary necrosis from interference with blood-supply; (2) hemorrhagic infarct following sudden restoration of circulation; or (3) phlebitis following pressure on the vein, and infection.

The symptomatology is striking. After five to eight days free from distress there begins a bloody diarrhea; the hemorrhage is often occult, lasting one to two weeks. Then three or four weeks after reposition symptoms of stenosis begin, namely, colicky pain very variable in seat and duration, meteorism, constipation, visible peristalsis, and anorexia, as food causes pain.

The treatment is operative. Five cases not operated on died; the other 18 recovered after operation, which was generally performed two to six months after the first reduction.

To prevent accidents after hernia operations see that there is pulsation in the arteries and the peristalsis returns before reposition. Avoid taxis as much as possible, and never replace loops without seeing that they are not adherent or constricted.

MUSCLE ANGIOMAS.

Interesting therapeutic conclusions are drawn by SEITTER (*Deutsche Zeitschrift f. klin. Chir.*, vol. lxxvi, Bd. 4) in regard to the treatment of angioma of the muscles. He states that on account of their tendency to become malignant and to recur after removal the entire muscle must be excised, unless the angioma is distinctly encapsulated. If the growth is very large it may be necessary to remove an entire group of muscles or even amputate the limb. The pathology is given in detail.

SPLENECTOMY FOR ANEURISM.

Believing that no similar case has ever been reported, V. URIACKLER (*Centralblatt für Chirurgie*, March 11, 1905) gives the details of a case operated on for aneurism of the splenic artery.

The anemic patient had suffered for seven years from attacks of abdominal pain accompanied by dizziness. Palpation revealed a very large and displaced spleen. After an attack in which she was unconscious for twenty-six hours she desired operation. The spleen was not adherent and showed tremendous enlargement of the arteries. Recovery was perfect.

Three large spherical aneurisms were found on the splenic artery, which was

enlarged throughout. The spleen showed extreme hypertrophy of the interstitial tissue. No cause for the aneurisms could be found.

RESECTION OF CARDIA OF STOMACH.

After describing the first case of hernia of the stomach through the diaphragm ever operated on, HEIDENHAIN (*Deutsche Zeitschrift für Chirurgie*, vol. lxxvi, Bd. 4) describes an operation for anastomosis between the stomach and esophagus which differs from that performed by Sauerbruch.

Heidenhain operated on two dogs, as follows: After making a long incision in the middle line of the abdomen extending up to the sternum, he extended it upward and to the left by cutting through the lower ribs. He then drew down the esophagus into the abdomen as far as possible, clamped it, and cut it, stitching the end of the esophagus to the fundus and closing the stomach wound made by removal of the cardia. The diaphragm was then opened, and the stomach pushed upward until there was no tension on the esophagus, and fastened to the diaphragm by sutures. The diaphragm was then closed, and the abdomen also. Both cases had good union, although only one lived.

CONGENITAL DISLOCATION OF THE HIP —RATIONAL TREATMENT.

The treatment of this condition is based by DAMANY (*Revue de Chirurgie*, Jan. 10, 1905) on the cause of the deformity, faulty mechanism of the hip-joint in the erect posture. This joint being originally developed with the femur at right angles to the trunk, this relation is retained until some time after birth, and it is not until the first attempts to walk that the malformation becomes evident. The rotation of the femur in extension forces the neck against the posterior edge of the acetabulum, thus forcing the head out of place. This occurs only when the angle of the neck of the femur is too far forward, or if the acetabulum is placed too far forward on the pelvis.

The treatment consists in reduction and retention, which is usually easy if the child is young, but after the fifth year may require incision of the capsule. Ordinarily, fixing the thigh in flexion and

abduction is sufficient, but if the deformity is extreme it may be necessary to draw the foot forward, rotating the femur to from 30° to 45° , thus diminishing the torsion of the femoral neck and the faulty angle caused thereby. The obliquity of the hip socket is corrected by the oblique deformity of the pelvis due to walking on the sound limb.

If the limb cannot be kept reduced it may be necessary to perform osteotomy below the trochanters, and by bending the bone place the head in flexion and the shaft in extension on the pelvis. Osteotomy followed by torsion of the shaft interferes markedly with muscular action.

The natural forces, muscular action and the weight of the limb when the person is standing, both tend to rotate the limb in the right direction, and the only fault with them is their slowness. They are entirely insufficient if the faulty angle of the femoral neck exceeds 60° , or if ossification is at all advanced. It is necessary that the child should walk a great deal, and that it should lie on the back with the limb supported upward.

The mechanical aids are mentioned: Extension by weight only at night, the femur being kept flexed by a band passing under the thigh near the body, is harmless, but not very effective; continuous action by springs, etc., are all to be condemned, as they prevent the use of the limb and cause muscular wasting and trophic changes; the necessary qualities of a good apparatus are as follows:

1. Extension, limited by pressure on the upper part of the thigh.
2. Abduction, maintained by pressure on the lower part of the thigh.
3. Motility of the greatest possible amount, without danger of dislocation.
4. Torsion of the femur; permitted in all except extreme cases.
5. Aid and encourage the use of muscles.
6. Replace the action of muscles by weight during the night.

Absolute immobilization is undesirable; only three movements must be prevented: adduction, extension, extreme rotation and at least 12° motion can be allowed in each direction. The pelvis and thigh should be protected by thick cotton wadding, and the plaster cast cut away wherever possible, especially on the upper inner part of the thigh. Treat-

ment should be begun as soon as the condition is noticed, generally when the child begins to walk. If the condition is well borne it should not be attempted after the fifth year, and in any case not after the eighth.

After the apparatus has been in use from one to one and a half years it may be removed without danger, in order to see whether cure is complete. The child can certainly go several days without a return of the deformity. The surest sign of insufficient rotation is incomplete extension. If extension is fair, the apparatus may be left off without danger. The greater prominence of the head is of less importance. Radiographs may be of use, but are not certain guides.

If the condition is so bad as to refuse to remain in position after treatment, it is necessary to perform osteotomy just below the small trochanter. After introducing a thick silver wire through a hole bored in the upper end of the shaft, bend the latter to any required degree, the wire retaining the angle and the apposition.

Double dislocations should be treated on both sides simultaneously.

TREATMENT OF PYELITIS.

KELLY (*Medical Record*, April 8, 1905) states that mild pyelitis is an almost unknown affection to the profession at large, yet one which is common and most important, since the severer grades are often the sequel of a mild infection of long standing. The extent of the affection is gauged by estimating the amount of pus in the urine and the relative number of organisms. The cause will often be of a mechanical nature, and therefore easily relieved. The milder forms are best treated by rest, abundance of water, and urotropin. If there is not a steady improvement the next simplest plan is catheterization of the kidneys every two to four days, for the purpose of evacuation, distention of the pelvis, irrigation and instillation, boric acid and silver nitrate being the best drugs to be used for these purposes. The test of improvement is to be found by urinary examination. If the treatment is serviceable, the pus will disappear and the organisms should diminish. Patients improved, but not cured, should be watched in the intervals of treatment and guarded with

especial care, in case of any intercurrent disease. Urotropin is regarded as a sure prophylactic. The severer forms of the disease may be treated by irrigation, but as a rule the kidney should be opened and drained, and if it has been extensively diseased it should be removed.

CLUBFOOT—MECHANICAL TREATMENT.

The metal sole combined with a plaster-of-Paris cast already advised by Sprengel in 1896 is used by NOBE (*Centralblatt für Chirurgie*, xxxii, No. 12), whose only modification consists in boring four holes near the edge of the metal sole, into which the ends of four wires fit, which are attached at the other end to a firm base which rests on the bed.

The foot being placed on the metal sole is held in position and fixed by plaster-of-Paris bandages, which are applied next the skin to avoid slipping. The ankle may be placed in any position by using the leg as a lever, the foot being fixed. After the first bandage is dry the metal sole is removed from the support, and another bandage is put around the whole to make it more neat.

REPORT OF PRESENT CONDITION OF CASES OPERATED ON FOR CONGENITAL DISLOCATION OF THE HIP.

NAPIER (*Brooklyn Medical Journal*, April, 1905) contributes some interesting remarks in regard to the result obtained by Professor Lorenz in a case of congenital dislocation of the hip reduced by him at the Kings County Hospital. After quoting the remark made by a German professor in regard to a double dislocation treated by Lorenz, to the effect that before the operation the child walked like a duck and afterward like a lame duck, Napier notes that sufficient time has not yet elapsed to determine fully as to the functional results which can reasonably be expected from the Lorenz operation. In regard to the particular case which Napier records the operation was performed on December 20, 1902, for the relief of a dorsal dislocation of the right hip. The second plaster was applied in August, 1903, with five degrees of abduction.

In October, 1903, the third plaster was

applied with lessened abduction, and this was kept on for two months. Thereafter some support was afforded by a snug flannel bandage spica. When the plaster treatment was discontinued the hip was partially reduced with about 30° abduction, and extreme rotation outward. At the time of report the head of the bone was placed in the anterior position, and there was shortening of three-eighths of an inch, as contrasted with a shortening of three-fourths of an inch which was present before operation. The leg was held absolutely abducted and rotated outward in walking, and there was a marked limp, one of stiffness and short leg combined with habit. While the hip could not be flexed quite to a right angle, the thigh could be rotated inward nearly to a straight position. This transposition from a posterior to an anterior position, while not an anatomical cure, is believed by Lorenz to be a practical one. He expects to have in selected cases only 10 per cent where the head remains in the acetabulum, and 50 or 60 per cent more anteriorly placed. The first case operated on by Napier, in January, 1903, aged six years, suffered from a right dorsal dislocation. The first cast was kept on seven months, and the second and third about two months each. At the time of reporting there was as much shortening as before the operation, the head of the femur was anteriorly placed, and there was slight abduction and rotation outward, with some stiffness.

The second case, one of double dislocation in a child 8½ years old, suffered from a fracture of the right femur in its upper third during an attempt at reduction. In this case it was reduced two months later, and still later manipulations were practiced on the right hip. The functional result is not given.

A third case, suffering from a luxation of the right leg, was operated on in June, 1903, being then six years old. On removal of the plaster the head was found in the acetabulum. At the time of reporting the affected leg measured three-eighths of an inch longer than the other.

The next reported case suffered from tubercular disease of the right hip and congenital dislocation of the left. In efforts to reduce this luxation the femur was fractured in the upper third. The further course of this case is not given.

The next case, a left hip, $3\frac{1}{2}$ years old, was easily reduced. Treatment was kept up for upward of a year. The shortening was reduced from five-eighths to one-fourth of an inch. The head seemed secure in the acetabulum.

The last case reported had an anterior dislocation of the left hip. It was operated on February 8, 1904, being then eighteen months old. Reduction was easily effected. Plaster treatment was kept up for nearly a year, until the head seemed nearly in place.

The brief records of these cases are interesting, as showing the difficulty often encountered in their reduction and the length of time essential for their efficient treatment. There is much to be desired, however, in regard to the narration of the functional results.

HIGH RECTAL CANCER.

JEWETT (*Brooklyn Medical Journal*, April, 1905) notes that 72 per cent of all intestinal carcinomata are rectal in location. Mechanical irritation is an apparent factor in the etiology, the commonest seat of carcinoma being in the lower four inches of the bowel. The growth is of the cylindrical cell variety and is rarely multiple. The growth of the tumor is rapid, and obstruction may develop abruptly from invagination. Early ulceration is the rule. The lymph glands are soon involved, first those behind the rectum and later those along the iliac vessels. The inguinal glands are implicated only when the disease is near the anus. The average duration of the disease from the time of first observation is two years. The principal evidences of high rectal cancer are pain, hemorrhage, partial obstruction, and palpable tumor. Persistent discharge of bloody mucus is highly significant, while tenesmus and difficult defecation are common. Occasionally the disease may progress with almost no symptoms until obstruction develops. Chronic diarrhea in patients past middle life is always cause for rectal examination.

Benign adenoma, stricture of non-malignant origin, villous growths, and polypi must be excluded.

The immediate mortality of radical operations of all kinds is from 15 to 20 per cent. From 6 to 10 per cent of oper-

ative cases are permanently cured. Colostomy adds but little to the length of life, and it has an immediate death-rate of 5 to 10 per cent. The combined abdominal and perineal operation, by which the gut is divided above the tumor, its proximal end drawn down through the distal segment with inversion of the latter, amputation of the loop above the growth and suture of the anus before replacing, is the method of choice when this measure is applicable. It is worthy of note that not all large tumors can be drawn through the distal segment in this manner. A preliminary colostomy is considered as a rule unwise. For facility, for neatness, and comparative freedom from mutilation, the vaginal method of exploration is held to offer obvious advantages to the gynecologist. Before this operation the cul-de-sac is opened by posterior vaginal section, permitting an exploration of the growth in the surrounding structures. The posterior vaginal wall is then incised through its entire extent in the median line, and is separated from the rectum on each side. This allows a free access to the gut and removal of the diseased part, with subsequent approximation of the divided parts by suture.

SOME NEW THERAPEUTIC METHODS IN DERMATOLOGY.

MORRIS (*British Medical Journal*, April 1, 1905) states that the general principle of the treatment of a large number of chronic affections of the skin may be expressed in the single word reaction. Without reaction there is no cure. Properly controlled it will work wonders. By reaction is meant response to stimulus. The mechanism of reaction is virtually that of inflammation passing through the various stages of hyperemia, infiltration, leucocytosis, exfoliation of epidermic structures, suppuration, and necrosis. The simple forms of reaction are exemplified by the transient erythema which follows the application of gentle heat. More active forms are produced by blistering agents and light rays properly applied, while severer forms are produced by croton oil and the incautious use of x-rays. Limited to hyperemia and multiplication of white corpuscles, reaction may be regarded as a method of quick-

ening tissues into healthy action with increase of phagocytosis. Of the external medicaments causing reaction, soft soap, tar, salicylic acid, pyrogallol, and chrysarobin are mentioned. Vigorous rubbing with soft soap was at one time the chief remedy in the treatment of chronic skin affections, and cure was wrought in a large number of cases. The beneficial effects of sulphur in acne and in superficial forms of sycosis and eczema are due to the reaction which it causes. The first effect is often to aggravate the skin disease, and hence sometimes the remedy is discontinued just when it is doing the greatest good. The benefit following tar, sulphur, and mercury in psoriasis, eczema, sycosis, etc., is proportionate to the reaction which follows their use. The most striking effect of the external medicament on the skin affection is the way in which chrysarobin cures chronic psoriasis. Used in the form of an ointment either alone or combined with tar or salicylic acid, it sets up inflammatory reaction, not in the affected parts but in the healthy skin around. Much pain is caused, which is likely to last several days, and sometimes a general dermatitis with elevation of temperature is produced. When the dermatitis has subsided it will be found that the patches of disease have disappeared. Morris particularly warns the practitioner against stopping his remedy because of pain, discomfort, and initial aggravation of symptoms.

Of the physical agents for producing reaction simple baths and radiant heat are the mildest methods. The curative effect of light rays is directly proportionate to the intensity of the inflammatory response. It may be said of the x -rays that some part at least is due to the reaction which they excite. There is, however, something more than local reaction, since it has been noted that other patches of lupus vulgaris besides those which are being treated improve at the same time, although they are not immediately under the influence of the x -rays.

Morris gives some statistics as to his experience with light and x -rays, noting that the great majority of cases of lupus vulgaris have been at least temporarily cured, but that slight relapses are common. His experience is somewhat

similar in the treatment of rodent ulcer, those of milder type healing readily, those more extensive very slowly, but all showing betterment, and those that were cured a tendency to slight relapses.

Ringworm of the scalp is, however, very successfully treated by the x -rays, the method being that described by Sabouraud, who carries out complete ablation, after which the case ceases to be infective. The estimated time for treatment is three months. This from an economical point of view represents an immense saving, since in a school established for children infected with ringworm the average stay of a child was rather more than two years. The cost of the treatment per head is now about \$50, and Morris states that its introduction represents a new era in the treatment of the disease.

The x -ray was extremely useful in some cases of acne and sycosis after all other methods had failed. Of three cases of keloid two were improved. Disfiguring scars were also successfully treated by the light rays, leaving a soft healthy surface. Alopecia was not particularly benefited either by the Finsen light or the high-frequency current. Great relief was, however, given to a case of leukoplakia of the tongue and mucous membrane of the mouth with ulceration.

POSTOPERATIVE GASTROINTESTINAL HEMORRHAGE.

The histories of 96 cases of gastrointestinal hemorrhage are given by Busse (*Archiv für klinische Chirurgie*, Bd. 76, Heft 1). He includes in his statistics all cases in which there was hemorrhage after operation, none having been manifest before. No cases of hernia with marked alteration of the bowel are included. Twenty-seven of the series were operated on for hernia; 25 were operations on the stomach or intestines, and 43 were other abdominal operations. The active cause was generally ligation of blood-vessels of the mesentery or omentum, but infection played a very important rôle. Of other causes, advanced age was the most important, but gastric or hepatic symptoms had been present in 21 cases and vascular or respiratory symptoms in 13. Vomiting after operation and trauma to the intestines during

surgical procedure were frequently mentioned. Infection or actual suppuration was present in 43 cases. The bleeding occurred generally from two to five days after operation, and usually recurred. Treatment was non-operative and ineffective, as 53 of the patients died. Autopsy showed as a rule erosions or ulcers.

TUBERCULOSIS OF THE PYLORUS.

The absence of mention of this condition in the text-books on tuberculosis and diseases of the stomach led RICARD and CHEVRIER to treat the subject in detail (*Revue de Chirurgie*, vol. xxv, May 10).

They found references to seventeen cases, to which they add four. The lesion may involve the stomach, pylorus, or duodenum, but the symptoms are the same, and as the disease is not limited as a rule, they may all be considered together. The tendency to include the duodenum is in contrast to cancer. The region is generally enlarged, but may be constricted, the peritoneum is roughened, and the part has about the consistence of a pasteboard tube. The lesion is diffuse and not in the form of tubercles. It does not affect the muscle, but is either submucous or subperitoneal. The part is almost always ulcerated, and the ulcers lie with their long axis across the pylorus or duodenum, in contrast to their position in the stomach, where they lie parallel to it.

DISLOCATION OF THE TIBIOTARSAL ARTICULATION.

According to RICHTER (*Deutsche Zeitschrift für Chirurgie*, vol. lxxvii, Heft 1) this dislocation, uncomplicated by fracture, is rare. Twenty-six cases were reported up to 1904, and seven since, five with radiographs. The dislocation is usually posterior, and is caused by overextension of the foot on the leg. The fibula is generally fractured and all ligaments ruptured. The skin may be torn. The mobility of the joint may be increased. Reduction is generally easy in early cases, but may be impossible after five days; ankylosis may occur in pes equinus position. Partial ankylosis may occur in any case, and luxation may recur.

Reduction, though easy, may require

narcosis. Wounds should not be sewed up. Suppuration in the joint ordinarily requires resection, which gives good functional results. The joint is fixed for four to six weeks, and then passive motion is begun. If reposition is impossible the Lorenz osteoclast redresseur may be applied to the leg, the strap passed around the foot; by pulling the foot is first brought into extreme flexion and then drawn forward into place. If this fails the tendo Achillis may be divided or the joint resected.

THE VALUE OF JEJUNOSTOMY.

This operation was performed 65 times in von Eiselberg's clinic, and the results are described by LEMPP (*Archiv für klinische Chirurgie*, Bd. lxxvi, Heft 1) in a long article. Almost all of the cases were operated on by Eiselberg's modification of Witzel's method, and in only four was the fistula troublesome or incontinent. The bowel is closed over a catheter, and this is left in unless leakage occurs around it, in which case it is removed for a short time until the fistula closes a little and thus prevents leakage.

The author first considers gastric cancer, and from a series of 44 cases draws the following conclusions: Even when it is known that a radical operation is impossible, laparotomy is justified if there is uncontrollable vomiting, especially if this follows eating. More rarely it may be performed for the relief of severe pain if rectal feeding is found to bring relief. Gastroenterostomy is the operation of choice if the pylorus is the seat of the tumor, but jejunostomy is preferable if the former is technically impossible, if the cardia is diseased and gastrostomy is not advisable, and if both cardia and pylorus are involved. The operation is also indicated if there is an internal gastric fistula, and when weakness is so extreme that the shortest procedure is the best. Jejunostomy is contraindicated if there is general carcinosis of the peritoneum, or if the symptoms are not relieved by a long course of rectal feeding.

The 18 cases of ulcer gave results which cannot be looked on as favorable, 8 cases dying inside of thirty days, and only 6 being cured. In the cases that

lived, however, the final results were better than after gastroenterostomy, and after the latter ulcer of the jejunum is not uncommon. Operation is indicated if medical means fail to cure, if there is loss of strength and weight, or if hemorrhage is severe, or carcinoma suspected. Excision of the ulcer should be performed if this is accessible and strength permits a long operation. Gastroenterostomy is preferable if there is stenosis of the pylorus, or if this seems likely to result. Jejunostomy should be done in cardiac stenosis if the cardia and pylorus are both involved, and in hour-glass stomach if either part is inaccessible. It is also the best in cases of "penetrating callous ulcer," internal gastric fistula, severe hemorrhage, and weakness requiring the shortest procedure. The fistula should be kept open as long as there are any symptoms of hyperacidity.

Of five cases of corrosion of the stomach, only two lived long enough after operation to give any idea of the value of the method, and in both the result was very favorable. The operation is indicated if feeding by mouth is impossible, or marked signs of malassimilation are present.

FEMORAL HERNIA—NEW OPERATION.

The divided sartorius muscle is used by POLYA (*Centralblatt für Chirurgie*, May 6, 1905) to close the canal. After showing that other methods do not guard against recurrence unless foreign bodies, which often cause suppuration, are introduced, he mentions the lack of function of the sartorius, and then describes his operation as follows:

After replacing the hernia, removing the sac, and ligating and dividing the saphenous vein, he splits the sheath of the sartorius from its origin to the middle of the thigh, and divides the muscle completely at that place. He then makes an opening through the sheath from the fossa ovalis, and drawing the muscle stump through this, over the great vessels, he forces it as far as possible into the canal and holds it in position by cat-gut stitches to the pectinate fascia and Poupart's, Gubernat's, and Cooper's ligaments. An incision is then made in the fascia lata at an obtuse angle to that in the sartorius sheath, and the flap thus

made is bent back and sewed over the stump of the sartorius, to the pectinate fascia and Poupart's ligament. The skin is then closed. An autopsy on a patient who died of erysipelas twenty-nine days after the operation showed that the peritoneum could not be protruded into the canal.

FURUNCLES AND CARBUNCLES—ELECTRIC TREATMENT.

The electric current is recommended by MARCUS (*Münchener medicinische Woch.*, May 23, 1905) and used in the following way: A fine needle is attached to the negative pole, the current is turned on gradually from 1 to 10 milliamperes, and the needle is introduced into the inflamed follicle. It is held there for two or three minutes until the generated hydrogen has bubbled out with all the secretion of the follicle. The current is then reversed, generating oxygen as an antiseptic, at the same current strength. If suppuration has already occurred, and in the case of carbuncles, larger needles are used.

The author warns against pressure on the inflamed follicle, especially when this is on the nape of the neck. He has seen three cases result fatally owing to the use of plaster in this region and the continued wearing of a collar.

GONORRHEA IN THE FEMALE—METHOD OF TREATMENT.

Thirty cases of gonorrhea were treated by PERRIER (*Revue Médicale de la Suisse Romande*, May 20, 1905), whose method is applicable to urethritis, cervicitis, and endometritis. He says nothing concerning the intra-abdominal complications, and his treatment of vaginitis and Bartholinitis is that usually employed.

For the other conditions he employs an instrument consisting of a metal tube closed at one end and perforated laterally. This tube is wrapped in cotton saturated with protargol or other antiseptic solution, which is covered with a cannula. The apparatus is introduced and the cannula withdrawn, leaving the cotton in contact with the mucous membrane. A suitable syringe is then applied to the outer end of the tube and the cotton again wet with the solution. The time

of contact varies with the nature of the solution. Three tubes must be had, one each for the urethra, cervix, and uterus.

With this method the average duration to complete cure in urethritis was ten days, and in cervicitis twenty days. Perrier warns especially against assuming the absence of gonorrhea because no pus is visible, and insists on microscopic examination of scrapings from the cervix.

ORCHIDOPEXY—NEW OPERATION.

A peculiar operation was performed by DE BEULE (*Centralblatt für Chirurgie*, May 6, 1905) on a seven-year-old boy with one-sided undescended testicle and inguinal hernia.

The hernia was treated in the usual way, and the testis drawn down as far as possible by gentle traction. The scrotum was then buttonholed opposite it and the testis drawn out. A corresponding slit was then made through the skin and fascia of the thigh, and the testis attached to the base of this wound by two silk sutures. The free edges of the two wounds were then sewed to each other, thus forming a tube of skin and fascia connecting the scrotum to the thigh and containing the testis. After ten days the patient got up, and after six weeks the tube was cut through near the crural end, the testis placed in the scrotum, and both ends closed.

This operation avoids sudden tension on the cord, which may lead to atrophy of the testicle.

COLLATERAL CIRCULATION AND LIGATION OF THE AORTA.

In two long articles dealing with these subjects KATZENSTEIN (*Deutsche Zeitschrift für Chirurgie*, vol. lxxvii, No. 3, and *Archiv für klinische Chirurgie*, vol. lxxxvi, No. 3) gives the following explanation of the development of the collateral circulation: The increase of size in the collateral vessels is due to increased function—that is, increased flow of blood. The flow of blood under ordinary circumstances is due to the difference in pressure between the artery and the vein. If this difference is increased the flow increases in proportion. If an artery is ligated the pressure in the distal

part of the vessel falls to zero, and blood therefore flows rapidly into it from all surrounding vessels; the latter increase in size from increasing function, and continue to do so until the pressure in the artery is as great as normal. Central pressure is increased by the ligation, although this is not evident at first owing to the depressing effect of anesthesia, laparotomy, and depression of the splanchnic nerves. The blood-pressure remains high until the pressure in the distal part of the ligated artery rises to normal, and as this takes several weeks the strain on the heart is so great that after ligation of a large vessel it is always found to be much hypertrophied.

In the second article he takes up the question of ligation of the aorta, which operation was performed on forty-five animals. He found that Sonnenberg's idea that pressure in the iliacs rose promptly to normal was due to the fact that closure was incomplete. The pressure rose slowly and reached normal after more than three months in a dog whose aorta was tied just above the bifurcation. He injected the collateral vessels with gelatin and found that the most important communications were those between the lumbar and femoral vessels, the internal mammary and epigastric, and the ileolumbar and last intercostal. The circulation depends not only on enlargement of existing capillaries, but also on new formation of such. The elasticity is of great importance in enlargement, and this explains the frequency of gangrene after occlusion of an artery in old people. Criminals killed or dying a few days after ligation showed always extreme dilatation of the left ventricle, which gradually was replaced by hypertrophy. Death was always due to this dilatation. Peripheral paralysis is due to lack of proper nourishment of the muscular tissues of the legs, and passes off as the flow of blood becomes normal again.

With regard to the operation of ligation of the aorta in man. This has been performed fourteen times, and in all cases with fatal result, although several ligations were incomplete. The operation should never be performed for injury, and only for aneurism, when the following conditions are certainly present: (1) The heart is able to overcome a very severe strain and to hypertrophy

in proportion; (2) arteriosclerosis must not be present, as this prevents the expansion of the small vessels. As these two conditions are rarely present where there is a large aneurism, the operation will rarely if ever be justified. If it is performed the aneurismal sac should be excised, as it may return to its previous size after the circulation is established.

INVAGINATION—IMPROVED OPERATION.

The sheath of the invagination is sewed to the edges of the wound by ISRAEL (*Münchener medizinische Wochenschrift*, April 25, 1905) as if for enterostomy. It is then split lengthwise and the invaginated part withdrawn and resected.

TRENDELENBURG POSTURE—NEW DANGER.

That vaginal secretion flowing through the cervical canal of an amputated uterus may cause fatal peritonitis is claimed by LAUENSTEIN (*Münchener medizinische Wochenschrift*, April 25, 1905). He reports a case in which this occurred, and emphasizes the necessity of tamponing the vagina after washing it out, in all cases in which the uterus is likely to be touched.

COXA VARA.

SENN (*Journal of the American Medical Association*, June 10, 1905) says that general treatment in coxa vara is unimportant if not useless. It is a local affection limited to the neck of the femur, and the exact nature of which is unknown. On the theory held by some authorities that it is a late manifestation of rickets, small doses of phosphorus internally would be theoretically indicated. Senn has used this drug in two cases with good effect. In patients the subject of syphilis potassium iodide should be used. The local treatment must have for its object the relief of pain and the limitation of the bending and torsion of the neck of the femur. These indications are met by securing absolute rest in bed, combined with extension by weight and pulley. This meets the requirements more perfectly than orthopedic appli-

ances, and should be continued until there is a cessation of the acute symptoms. The patient should then use crutches for a number of weeks, during which time the sole of the shoe on the opposite side should be raised at least an inch in order to secure autoextension of the affected limb. Operative treatment is contraindicated until the active symptoms are under full control.

After the acute stage baths, massage, and electricity are useful in developing the atrophied muscles and increasing the range of joint motion. Forced motion under narcosis may improve the functional result.

When the surgeon has satisfied himself that conservative treatment and nature's efforts have failed in restoring usefulness of the limbs various operative procedures suggest themselves. No single operation will suffice for all cases. X-ray pictures showing the anterior and posterior aspects of the joint will aid the surgeon in the selection of the operation. Section of the adductor muscles combined with *brisement forcé*, as practiced by Zehnder and Vulpis, is at best of limited application. Several disastrous results have followed excision of a wedge-shaped piece of bone from the anterior convex side of the neck, as advised by Kraske and Budinger. This operation is condemned by Koenig unless it can be made extracapsular, which is not often the case. Hofmeister's linear straight subtrochanteric osteotomy and Hoffa's oblique subtrochanteric osteotomy have been used with success in a number of cases. Willard obtained a good result in a bad case by intertrochanteric linear osteotomy. In one case Hoffa succeeded in reducing the shortening of the limb from 7 to 3 inches by resection of the joint.

ABORTIVE TREATMENT OF GONORRHEA

Silver nitrate injections are recommended for the abortive treatment of gonorrhea by BERG (*St. Petersburger medizinische Wochenschrift*, April 2, 1905). He has modified slightly the method of Engelbreth, and now proceeds as follows: At first visit 500 cubic centimeters of a 1-to-500 solution of A_2NO_3 is injected with an elevation of 50 centimeters. The second follows ten hours

later, and the third twelve hours after that. These are carried out in the same way, except that it is necessary to inject 4 to 5 cubic centimeters of a two-per-cent eucaïne or cocaine solution first, on account of pain. Forty-eight hours later the patient returns, and if the discharge does not seem purulent the case may be considered cured. A greater number of injections does not improve the statistics.

Cases showing signs of inflammation at the first visit, soreness of meatus, dysuria, tenderness on pressure, cystitis, etc., are not benefited by this method. Of suitable cases, from two-thirds to three-quarters are permanently cured.

CHORIOEPITHELIOMA MALIGNUM.

BLAND (*Journal of the American Medical Association*, June 10, 1905) says the treatment of epithelioma should be complete extirpation of the uterus at the earliest possible moment. The lack of knowledge of the early development of this tumor makes impossible the adoption of preventive measures. However, in cases of hydatid mole it should be considered that the woman is menaced with malignant disease. The uterus should then be thoroughly cleaned and packed to induce the muscle to contract and regain its normal thickness and consistence. The cavity of the uterus should be swabbed with creosote or zinc chloride, and at intervals of ten or fifteen days should be curetted, and the material obtained should be examined with the microscope. If atypical metrorrhagia persists malignant disease should be considered probable and the organ removed, even if unable to detect any intra-uterine nodule or ulceration. If on microscopic examination atypical proliferation of the cells of the villi is found, early hysterectomy should be performed.

SOME POINTS IN THE TREATMENT OF METACARPAL FISSURE.

BECK (*New York Medical Journal*, May 20, 1905) says that skiagraphy has established the fact that a large number of alleged dislocations and contusions in the metacarpal region are really fractures. The displacement in fractures of

the metacarpal bone is most frequently lateral, or both lateral and dorsal, and not either dorsal or palmar as originally taught. If there is lateral displacement, the methods of reposition made use of in dorsal or palmar displacement are ineffective; lateral influence is required. This can be exerted by lightly pressing rubber drainage-tubes between the adjoining interosseous spaces and keeping them *in situ* by adhesive strips. The hand may then be surrounded by plaster-of-Paris dressing or a moss splint. Beck points out a fracture type not heretofore described, namely, fissure above the metacarpal epiphysis. The treatment of this injury requires nothing but immobilization. Rough manipulations made for diagnostic purposes are apt to increase the extent of the injury, and may even produce a displacement. All that the patient needs is proper protection of the hand for two or three weeks by a small plaster-of-Paris or moss-board dressing.

A SUCCESSFUL METHOD OF TREATING FRACTURE OF THE FEMUR IN INFANCY.

STERN (*New York Medical Journal*, May 20, 1905) describes a method of treatment which has proved uniformly successful in his hands in a small number of cases. It is the only successful way of treating these cases up to the age of two years. The requirements are ability to nurse properly at the breast, cleanliness, holding the fragments in position without subsequent deformity, freedom from pain on moving the child for necessary changes of clothing, and the prevention of shortening. The method of vertical extension which Stern describes meets all these requirements in an ideal way. The extension is not applied, however, prior to the third day of the child's life. During the first three days fixation is secured by wrapping the child in a feather pillow, as practiced by the peasantry of Europe. In applying the extension the child rests on a pillow placed on a low stand next to the bed, on a level with the mattress. The body of the child is parallel to the bed, and its head placed at the position of the mother's breast as she lies in bed. The adhesive straps for the extension are put on in the usual fashion, after cleansing the skin with alcohol and ether, and

should reach well up over the trochanter. Zinc oxide plaster should be used as it is less irritating. If sterilized plaster is used, extension can be left unchanged for three weeks. The plaster should be held down by circular turns around the malleolus, the top of the tibia, the condyles of the femur, and the groin. The groin and buttocks are carefully bandaged with a two-inch bandage of oiled silk kept in place by adhesive strips; a flannel bandage is then carefully applied from the toes to the groin to keep the leg warm, and this in turn protected by an oiled silk bandage. No spica about the groin is needed. Extension is carried upward with wire to the ceiling, then over for three or four feet to the side so as to get the weight away from the baby, and down over another hook for a foot or two, where the weight is placed out of reach. Half of a five-pound bag of salt makes the best weight, and the weight can be changed at will by adding or taking out the salt. The weight should be just enough to lift the buttock off the pillow. Relief from pain is almost immediate, and pain is not apt to be caused by the various manipulations in caring for the child. It is impracticable to allow the child to lie in the same bed with the mother.

The author records the cases of seven children, aged respectively fourteen days, one day, nineteen days, thirteen days, nine days, nine months, and six months, which he treated successfully by the method described.

THE TREATMENT OF PURULENT CAVITIES.

Woods (*British Medical Journal*, May 20, 1905) presents his views upon the treatment of purulent cavities, saying that although drainage is successful in dealing with soft-tissue abscesses, it is of small value in chronic purulent collections inside of fixed walls. In abscesses of soft tissues the structures around the abscess may be distorted from their natural position, to which they tend to revert. The tissues are pushed rudely aside by the rapidly growing collection of pus, and their elasticity is less impaired than in case of an abscess of slow development. A tendency to revert to their normal position is greater in soft tissues. If the

abscess is slow in growth, the cavity large, and the surrounding tissues lax, the tendency to spontaneous evacuation is so feeble as to be unable to overcome the effect of gravity if the opening is not near the lowest point, while if the abscess is of moderate size and the walls firm, the influence of gravity is not sufficient to result in evacuation. When the walls of the cavity are elastic evacuation will occur in spite of the influence of gravity, even if the opening is made near the highest point of the abscess. In case of empyema of the pleural cavity the outer wall of the abscess is fixed, and as healing can take place only through union of the parietal and visceral walls, it can be accomplished only by rapid expansion of the lungs. It is practicable to accomplish this only by applying a suction apparatus to the pleural cavity. The seat of the wound where the drainage tube is inserted must be proof against the passage of air.

Woods has devised a special drainage apparatus which has an air pad in which the drainage-tube is sealed, and which is secured to the patient by a belt passing around the chest and a strap. The pad ought not to be removed until the case is quite or very nearly cured, because the entrance of air would break up the adhesions between the granulating surfaces. The opening in the chest need not be at the most dependent part of the cavity, provided the drainage-tube reaches to the bottom of the cavity. When the remainder of the pleura has become adherent the track of the tube can be made to close by shortening the tube. In case of rigid cavities, such as the antrum of Highmore, where the mucous membrane is degenerated, the futility of cure by drainage is apparent. Drainage can at best only get rid of the excess of pus. It can never leave the cavity pus-free. The advantage in making an opening in the most dependent point of such cavities is not so important because of the drainage it gives, but because it allows thorough flushing and cleansing of the cavity, thus permitting the lining membrane to recover. Union does not take place in these cavities by their obliteration because the walls are rigid and cannot collapse. The walls should be thoroughly cleaned and the raw surfaces induced to epithelialize. When the epithelium is entirely destroyed

new epithelium may extend from adjoining cavities. In many cases, as in the mastoid, the frontal sinus, and bone abscesses, healing can be facilitated by grafting new tissue into the cavities.

REPAIR OF INJURY TO THE URETER.

LAPTHORN SMITH (*American Journal of Obstetrics*, June, 1905) reports three cases of repair of injury to the ureter, two of transplantation into the bladder, and one of end-to-end suture. There are three principal ways in which the ureter may be injured and give rise to a fistula: first, by being compressed between the child's head and the pelvic wall during prolonged labor with impaction of the head; secondly, by being compressed between the blades of the clamps during vaginal hysterectomy for cancer; and thirdly, by being accidentally cut during the removal of a large abdominal tumor, especially when the latter occupies one of the broad ligaments.

Smith's first case was due to parturition. The head had been impacted for two days. A few days later a large piece of sloughing mucous membrane came away from the vagina, and the patient was constantly wet with urine. For the next eighteen months she had a miserable existence. Two attempts were made in hospitals in London to cover up the hole in the vagina from which the urine flowed, but resulted in failure. Smith first attempted to cure the condition by a vaginal plastic operation, but did not succeed. He then incised the abdomen in the middle line from the pubis to the umbilicus, down to but not through the peritoneum. The latter was then pushed off the abdominal wall on the right side with a view to reaching the ureter without opening the peritoneal cavity. He did not succeed in doing this, and was then obliged to open the peritoneum in order to get at the ureter. About an inch of the lower end of it was embedded in cicatricial tissue and had to be sacrificed. A silk ligature was placed around it and the end cut off. The end of the ureter was split open for a third of an inch. A slit was then made obliquely into the right upper corner of the bladder and the ureter stitched into the bladder, the mucous membrane of the ureter to the mucous membrane of the

bladder, with very fine chromicized catgut, and the fibroid coat of the ureter to the muscular wall of the bladder with six fine black silk stitches. The bladder was then distended with a pint of weak methyl-blue solution, but none leaked through the point of transplantation. The peritoneum was closed with fine catgut. A drainage-tube was placed down from the end of the incision in the abdomen to a little below the opening in the bladder. A *catheter à demeure* was introduced into the bladder, and the abdomen was closed with silkworm-gut. The patient made a good recovery.

The second case was due to injury of the ureter by clamps. Operation was done by transplanting the ureter into the bladder as in the previous case, although it was somewhat difficult owing to the fact that the ureteral stump was about an inch shorter. Either because of distention of the bladder with urine or tension of the sutures due to the shortness of the ureter, about a quarter of the circumference pulled out from the bladder and leakage occurred. There were no bad results, and at the end of the month the abdomen was reopened and the leak closed. A month later the cure was complete.

The third case was one in which the ureter was cut during the removal of a very large broad ligament cyst. The ureter was nearly three-fourths of an inch wide in this case, but was cut only three-fourths through. Repair was made by sewing the muscular layer all the way round with interrupted sutures, and then another running layer of sutures was put over that. The patient made an uneventful recovery without the slightest sign of urinary fistula.

RELAPSING EPIDIDYMITIS.

LYDSTON (*International Journal of Surgery*, June, 1905) discusses various causes of relapsing epididymitis, and asserts that a certain proportion of cases require more radical procedures than are usually instituted. Radical treatment is especially indicated where the epididymis and vas are so badly damaged that they are practically out of function; also when but one testis is involved in young or middle-aged subjects, and life is made miser-

able by frequent recurrence. When in such subjects both testes are involved from time to time the question of radical treatment should be carefully considered, because of the possibility that one or both epididymes may regain their patency and the testis thus be restored. Considerable experience with this class of patients is necessary to decide upon the advisability of operation. When there are no contraindications to operation and the patient has been apprised of its relation to sterility, or in cases where the question of sterility is of no moment, vasectomy affords a sure and safe relief for the condition. Virility is in no sense impaired by unilateral vasectomy, and the operation prevents the development of conditions which would later demand the removal of the entire organ. In cases in which tuberculosis is probable, though not positively made out, it opposes a barrier between the tubercular testicle and general infection; also infection of the deep urethra, bladder, and kidney. In the performance of all mutilating operations upon the testes and cord likely to interfere with the propagative function a statement of the probable or inevitable results should be made to the patient in the presence of a witness.

Reviews.

THE DIAGNOSIS OF DISEASES OF WOMEN. A TREATISE FOR STUDENTS AND PRACTITIONERS. By Palmer Findley, V.S., M.D. Second Edition, Revised and Enlarged. Illustrated. Lea Bros. & Co., New York and Philadelphia, 1905.

This book clearly recognizes the importance of both macroscopic and microscopic morbid anatomy from the standpoint of the diagnostician. There is a chapter upon bacteriological examinations, although the technique is not given; and upon examination of the blood, though not in sufficient detail to be particularly serviceable to those without previous extended experience. The opening chapters are devoted to the clinical history; those upon physical examination are excellent. The chapter devoted to the diagnosis of uterine and ectopic pregnancy is especially to be commended for the purpose of the general practitioner. That dealing with endometritis is an admirable summary of the present knowledge of this condition.

The third section of the book is devoted to the diagnosis of diseases of the urethra, bladder, ureters, and kidneys.

In general it may be said that this book is excellently arranged and beautifully illustrated. It is not intended for the specialist, and to him would be of minor helpfulness, but to the student, and particularly the practitioner, it is likely to be of great service.

TREATISE ON ORTHOPEDIC SURGERY. By Edward H. Bradford, M.D., and Robert W. Lovett, M.D. Third Edition. Illustrated. Wm. Wood & Co., New York, 1905.

This the third edition of Bradford and Lovett's extremely practical and able treatise upon orthopedic surgery will be hailed with satisfaction by both the specialist in this line of work and the general practitioner, since it embodies in the most useful form practically all of the serviceable recent advances in this branch of surgery. The authors state that these advances have been most pronounced in the treatment of congenital dislocation of the hip, of scoliosis, of traumatic and non-traumatic coxa vara, and non-tuberculous disease of the joints, and consequently it is in the chapters devoted to these subjects that the greatest number of changes will be found. As a further help, and one which is quite certain to prove a most useful addition to this work, they have added a final chapter giving descriptions and drawings of the orthopedic appliances found to be of the greatest practical efficiency. This is one of the books which should prove a part of the practitioner's working library.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.D., F.R.C.P.

In a recent lecture at the Polyclinic the time-worn subject of chorea was considered by Dr. Seymour Taylor; and he based his remarks on treatment chiefly on the case of a young woman aged nineteen years, who was severely affected by chorea, but gave no personal or family history of rheumatism. The usual treatment by arsenic was tried, and the dose steadily increased from four up to fifteen minims. There was, however, no im-

provement, and during the absence of the physician for a few days the resident medical officer took upon himself to try the effect of salicylate instead. Fifteen grains of sodium salicylate was given three times a day, and after twelve hours the chorea was apparently completely cured. After mentioning the numerous modes of treatment which have been in vogue—for instance, chloral, valerian, conium, belladonna, bromide, and silver nitrate—Dr. Taylor exhorted his hearers to give salicylates a trial, and assured them that they would be agreeably surprised in the result.

This salicylate treatment of chorea has been much to the fore recently. Dr. Lees in particular, in a recent communication to the British Medical Association, advocated large doses of sodium salicylate, as much as 100 to 200 grains being given daily (in divided doses) to a child of six to ten years; but he pointed out an important fact of which Dr. Taylor made no mention, namely, that sodium salicylate has a dangerous toxic action, producing a kind of "air-hunger" which may prove fatal, but which can be prevented altogether by combining sodium bicarbonate with the salicylate, so that the dose of the former is twice as large as that of the latter. It has recently been stated that aspirin similarly has a marked curative action in chorea. Of course, as Dr. Seymour Taylor has pointed out, this treatment of chorea refers only to the particular disease, Sydenham's chorea, the form which is so common in children; this must not be confused with the nervous spasm which is sometimes known as "tic," nor with the severe choreiform irregularity of movement which is seen in adult women as the result of fright or strong mental emotion.

The Royal College of Physicians has just been observing its annual commemoration of the immortal Harvey. This function consists of an oration, which according to Harvey's directions was to be given in Latin, but the utilitarian tendencies of to-day have converted this into the vulgar tongue, which, perchance, is seemly, for some of our medical Latin might make Cicero turn in his grave. The other part of the commemoration, said the thoughtful Harvey, "shall be a general feast kept within the said College for all the Fellows that shall please to come."

So each year the Fellows meet to do honor to the memory of William Harvey, and, as one of the senior Fellows of the College, Dr. F. T. Roberts this year delivered the oration. In contrast with the recent agitation at Cambridge against "compulsory Greek," especially in the case of science students, it was gratifying to hear Dr. Roberts express his opinion that "it would be a great mistake to do away with classical instruction as an essential part of the early training and general culture required for the medical profession." He insisted on the value of experimentation by vivisection in pharmacology, and referred to recent therapeutics of the circulatory system, the use of physical exercises and balneological methods, the effects of adrenalin, and the value in some cases of bloodletting.

At the Medico-chirurgical Society this month a paper was read on abdominal tuberculosis in childhood, dealing chiefly with tubercular peritonitis. It was stated that an unaccountable loss of weight with irregularity of the bowels should arouse a suspicion of abdominal tuberculosis, and an anesthetic should be given for examination; the presence of hard and enlarged mesenteric glands would confirm the suspicion. Out of 40 cases 24 proved fatal; and out of 11 fatal cases six showed tuberculosis limited to the abdomen. On this ground it was suggested that early operation was advisable, a suggestion which is certainly not supported by experimental investigations on animals, nor, in the opinion of some physicians of large experience, by clinical facts. As Dr. Carr pointed out, the acute cases with ascites are just those in which prognosis is least unfavorable, and he might have added that it is these which the surgeons recommend for laparotomy, instead of leaving nature to cure them gradually in her own way, which she does at least as often as, if not oftener than, the surgeon does with his unnecessary operation.

An interesting case was reported to the Clinical Society by Mr. James Berry, of a man who having had no treatment for the first three months after acquiring syphilis, had by that time suffered extensive ulceration of one ala nasi, so that the interior of the nostril was exposed. Twelve months after the onset of the disease a plastic operation was done: a flap of skin and muscle from the adjoining

part of the nose and cheek was dissected up and twisted round into the position of the ala nasi. Primary union occurred, and the patient was left with a very presentable nose, and comparatively little disfigurement of the face. Subsequent speakers commented on the unusually brilliant success of this operation, for syphilitic ulcers do not usually give good results with plastic operations. Those of the palate in particular were mentioned as difficult to close, and Mr. Berry said that for these he advises the wearing of a plate and reliance on granulations to close the perforation.

An interesting discussion took place at the West London Medico-chirurgical Society on the recognition and treatment of mental disease in private practice. Dr. Stoddart said that insanity is often overlooked by the practitioner, who passes over the condition as "hysteria" or "neurasthenia," or even "liver." Loss of memory he referred to specially as often the earliest symptom of general paralysis. One form of treatment for insanity he regarded as mischievous and dangerous, the treatment by travel, at any rate in acute cases; in this view he was supported by the president, Mr. C. M. Tuke. In some forms of insanity home treatment is advisable—for instance, in the mental decay of senility, and in the transitory insanity which results from fevers or acute poisoning from extrinsic or intrinsic poisons; sometimes also acute delirious mania could be treated at home. But with home treatment it is important to have a nurse with some special experience in such cases. For the insomnia Dr. Stoddart recommended a combination of bromide with hyoscyamus, or sulphonal, or better still paraldehyde, which has the advantage of being to some extent a cardiac stimulant. In the worst cases a general anesthetic might be necessary. The difficulty of feeding is to be dealt with either by nasal or by oral feeding per tube, but in private practice this is sometimes so difficult that rectal feeding may be more practicable.

The lay press, particularly the very cheap and popular variety, has been excited—as well it might be—by the announcement of the discovery of "the origin of life," or, as the more profound newspaper savants describe it, the demonstration of "spontaneous generation."

Head-lines—in the largest type—announce the "modesty of the discoverer," who unlike his less modest newspaper admirers is not yet quite confident of his creative power, in spite of the recognition of certain small bodies which appear to divide and subdivide in a mixture of radium and beef bouillon. We think we have heard something remarkably like this before, proving generally the difficulty of complete sterilization, possibly in this case showing how difficult it is to distinguish minute crystals from bacteria—but leaving the dictum "*omne vivum e vivo*" as indisputable as ever.

PARIS LETTER.

By R. H. TURNER, M.D. (PARIS).

At a recent meeting of the Society of Surgery, Professor Berger gave his views on the best means of producing narcosis. He does not favor the new apparatus which is being employed, and he considers the best method is that of using a compress. Dr. Berger does not approve of the Roth-Draeger apparatus, because it is too cumbersome, gets out of order, and the mask which is always used does not tend to reassure the patient. The most important thing is the skill of the physician who gives the chloroform. Apparatus may be useful in large hospitals, but for general practice nothing is equal to the simple compress.

At one of the last meetings of the Medical Society of Hamburg Dr. Dreuw described the results he had obtained in the treatment of lupus by cauterizations with pure hydrochloric acid. The technique is relatively simple, and consists in freezing the part with chloride of ethyl, and then rubbing the lesions with a tampon dipped in pure hydrochloric acid until there is a uniform whitish-gray tint. After a day or two brown scars are formed, which fall after three or four weeks. After doing this two or three times the diseased tissues are eliminated, and there only remain a few nodules, which can be easily cauterized with a small glass tube dipped in hydrochloric acid. This treatment is simple and cheap.

Dr. Vincent, who has studied the tonsillitis which is known under his name, and which is due to a fusiform bacillus,

has examined recently its frequency and published his results in the *Presse Médicale*. Out of 221 cases of tonsillitis seen at the Military Hospital of the Val de Grace, 13 cases were found to be due to simple diphtheria, 95 to the streptococcus, 57 to the staphylococcus, 9 to the pneumococcus, 42 to various bacilli, and 5 to the spirillum or fusiform bacillus. This makes a proportion of about 2.26 per cent. This shows that the disease is relatively common. According to Dr. Marfan, one child out of every hundred sent to the diphtheria pavilion is affected with this disease, and it should be remembered that a certain selection is made before their admittance to the pavilion.

Dr. Meyer, a German oculist, has reported a case of partial blindness due to the use of the extract of male-fern as a treatment of tapeworm. The dose taken was the usual one, and the patient was in a comatose condition for a day and a half. Such symptoms are very rarely seen, but they show how careful one must be not to give too large a dose of this drug, and it seems, according to Dr. Meyer, that such a result may be avoided by never giving castor oil or any oil at the same time as the drug.

Dr. Boas, the celebrated stomach specialist, recommends the following treatment for tenia: The patient is not obliged to follow out any regimen before taking the drug, and early in the morning he is given 5 to 8 grammes of extract of male-fern in a mucilage of Arabic gum. For six or seven hours the patient does not take anything; he then drinks two glasses of an aperient water, and can afterward eat. The tenia does not fail to be expelled shortly afterward.

At a meeting of the Society of Surgery Professor Ledentu presented a young man who had been stabbed with a knife in the popliteal space, and subsequently was afflicted with a large aneurism which occupied the greater part of the popliteal space and of the calf of the leg. Dr. Ledentu hardly dared to remove the aneurism, which seemed to be due to an enlargement of the tibio-peroneal artery, as he feared consequent gangrene; so he tried injections of gelatinous serum. In five weeks seven injections of a two-per-cent solution—i.e., 200 grammes in all—were made. The aneurism diminished rapidly and disappeared. At the present

time the patient seems to be absolutely cured.

At a meeting of the Medical Society of the Hospitals Dr. Dopfer described the results he had obtained in diphtheria by using Martin's pastilles of antidiphtheric serum as a means of hastening the disappearance of Loeffler's bacillus. About twelve pastilles should be sucked daily by the patient, and it would seem that in five days at the most the bacilli have disappeared. The dried serum in the form of a powder has been used in the nose, but with less success. The paralysis of the palate would seem to be prevented. Dr. Lermoyez, the great nose and throat specialist, considers it would be best to make a solution and use it as a spray in the nose.

Dr. Bergonie has tried x-rays in four cases of non-suppurative tuberculous polyadenitis, and has found the treatment distinctly favorable. The swelling diminished slowly in size, but rarely disappeared completely. The best radiations would seem to be those which produce a marked inflammation of the skin. There did not seem to be any noticeable influence on the general health of the patients.

Dr. Broca, surgeon at one of the children's hospitals in Paris, has recently written an article on the best treatment of foreign bodies in the esophagus. Several surgeons had recommended at a meeting of the Society of Surgery the use of the knife, but strange to say, all the surgeons for children—Lalaguier, Kirmisson, Felizet—recommended milder methods, and Kirmisson described a special hook which he used. Broca has seen about a hundred cases of foreign body in the esophagus—about one case a month at the hospital—and he insists upon two points in the use of the de Graefe basket: the child should of course be kept quite immovable, and the index-finger should be introduced into the mouth, which is kept open by a gag or a piece of wood. The finger should serve to bend the instrument so as to prevent its stopping short against the posterior wall of the pharynx. Once the basket has caught the piece of money, the index-finger should be placed on the upper edge so as to prevent its hitting against the cricoid cartilage. By maneuvering in this manner Dr. Broca has had only one serious accident out of one hundred cases. This

is much better than the ten per cent of mortality of the esophagotomy operation.

At a meeting of the Society of Surgery Dr. Walther presented a patient who had been treated by *x*-rays for sarcoma of the orbit. This patient was shown to the society last November, when a small nodule was still to be felt. The treatment was continued, and now it is easy to convince oneself that it has quite disappeared.

Notes and Queries.

THE DISCOVERY OF THE DISCOVERED.

M. O. van Schoor, in an essay in the *Journal de Pharmacie* for March, accentuates the truth of the adage, "*Nil novi sub sole*." Some of his illustrations are worth giving. Hippocrates was aware of the patches in the intestines the discovery of which is ascribed to Peyer (1680), and Caspar Aselli (1600) is wrongly said to have discovered the chyloferous vessels to which Herophilus and Erasistratus drew attention (250 B. C.): The pancreatic duct, the discovery of which is attributed to Hoffman and Wirsung (1630), is mentioned by Eudemus, a contemporary of Galen. Again, Alcæon, who lived in the fourth century before Christ, refers to the auditory duct which afterward bore the name of Eustachian tube. The same thing has occurred in therapeutics. Many remedies that were employed in remote antiquity fell into disuse and were again introduced into practice at a later date. Thus, arsenic was used as a febrifuge by Lentilius, and Hippocrates recommended it for cancerous affections. The most recent researches have resulted in the employment of arsenic for the same purpose in the form of organic compounds—*e.g.*, the cacodylates and arrhenal. Pythagoras recognized the diuretic value of squill, but its use lapsed for a long period. Opium has been found in the dwellings of the inhabitants of the lake villages of Switzerland as well as in ancient Egyptian tombs, but afterward it appears to have been forgotten during several centuries. Hippocrates employed this drug freely as a sedative, and afterward it had a vogue in the middle ages. Even Paracelsus did not scruple to use this vegetable

drug in the case of one Körnel von Lichtenfels, who had vainly tried other practitioners without being cured. Paracelsus speedily effected a cure, but it is of interest to note that the patient refused to pay the fee which had been agreed upon before the treatment was begun. The case was tried before the court in Basle, with the result that the fee was reduced to a few florins. This so angered Paracelsus that he reproached the judge, and so brought about his banishment and the loss of the chair which he occupied in the university. A remedy known to Galen was the male-fern, which after the lapse of centuries was brought to the notice of Louis XIV. by a quack.

In surgery it is no less true that some of the methods employed by modern advanced surgeons were known to the ancients. Thus Hippocrates mentioned intubation of the larynx, and Cælius Aurelianus gave instances of the successful operation of tracheotomy. Praxagoras ventured to perform a laparotomy and employed intestinal sutures. Operations for hernia were performed 250 B.C., and Serapion removed diseased kidneys. Puncture of the thorax in empyema was rediscovered in 1650, after having been forgotten apparently for centuries. That the practice of asepsis is not entirely modern is shown by the fact that contemporaries of Hippocrates were in the habit of dipping their instruments in boiling water. In the thirteenth century it was customary before operating to administer to patients by means of sponges placed in the nose the juices of sedative plants—*e.g.*, stramonium, belladonna, and mandragora, consciousness being regained by the application of vinegar compresses. Among other methods of treatment now in vogue hydrotherapy, gymnastics, and the open-air treatment were practiced by the Romans and the Greeks. Hypnotism was thought highly of by the priestly physicians in the temples of Isis in ancient Egypt. Perhaps one of the oldest forms of medication is organotherapy, which after a period of decline has again come into vogue. In medicine and surgery, as in all the arts and sciences, methods become general, then lapse into disuse, to be revived possibly at a later period, and then to achieve a popularity which attaches to a supposed new thing.—*Lancet*, April 22, 1905.

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Original Communications.

THE PRESENT STATUS OF SERUM THERAPY.¹

BY EZRA READ LARNED, M.D.,
Chicago, Illinois.

By the term "serum therapy" is meant the treatment of certain morbid conditions by the use of the blood of animals which have been subjected to gradually increasing doses of the toxins (until tolerance to enormous doses is established) elaborated in artificial media by the germ recognized as the specific etiologic factor in the production of the disease under treatment.

Classification of Sera as Used in Medicine.—This is an arbitrary classification on my part. Other arrangements may be made by those who desire to do so in accordance with their special purposes, but in this paper I propose to consider in two broad groups many of the sera proposed for the treatment of disease in man. These two groups I called "Curative Sera" and "Diagnostic Sera." Under the head "Curative Sera" I include all those which have been proposed as remedial agents. Under the head "Diagnostic Sera" I refer to sera which have been used for the purpose of identifying the morbid condition under consideration.

I have also classified sera as to their efficacy, making three broad divisions:

First, those whose efficacy has been demonstrated beyond reasonable doubt, such as antidiphtheric, antitetanic, anti-

¹Read at the annual meeting of the Illinois State Medical Society, Rock Island, May 16, 1905.

plague, antistreptococcic, serum for exophthalmic goitre.

Secondly, those whose value appears likely or possible, but in support of which there is not yet sufficient evidence to warrant their inclusion in Class I, such as serum for hay-fever, tuberculin, anti-typhoid, antitubercle, antirabic, anti-venene.

Thirdly, those sera whose efficiency is questioned by the majority of observers, or whose value has been demonstrated to be entirely negative, such as antipneumococcic sera, antiscarlatinal sera, antidysenteric sera, antivarioloid sera, antitoxin for cerebrospinal meningitis, serum for rheumatism, serum for syphilis, serum for anthrax, cancer serum, leprolin.

Workers in Sera.—It would be a difficult matter indeed to classify the workers in sera, since directly or indirectly bacteriologists the world over (almost always medical men), are laboring with vast expenditures of time and money and strength to improve the sera already known to be of value, to overcome the difficulties attendant upon the elaboration of and to produce sera of definite value in those diseases which seem to be amenable to this method of treatment, and to find the specific etiologic factor and its antidote in those diseases which we have reason to believe are due to some specific germ and which we have hopes of curing by the use of serum.

Elaboration of Sera.—I presume that the methods employed in the elaboration of the various sera are familiar to you all, and that, therefore, it would be useless to enter into any elaborate discussion on this point; but for the benefit of those who may not be thoroughly familiar with the subject, I may briefly say that in the manufacture of antidiphtheric, antitubercle, antistreptococcic, antiplague, antipneumococcic, antiscarlatinal, antidysenteric, and other sera, the methods usually employed are as follows:

From typical human cases of the specific disease cultures are taken—in the case of diphtheria from the nose and throat; in streptococcic infection from throat, nose, heart's blood, pus, etc.; in scarlet fever cases from the heart's blood and from the throat; in tuberculosis from the sputum; in plague from the buboes and the blood; in typhoid from

the blood; in pneumonia from the sputum, and the scrapings of blood from the lung; and so on—with which suitable artificial culture media are inoculated.

By well known bacteriologic methods pure cultures are isolated, which are in many cases run through lower animals, sometimes for several generations, to increase their virulence, and the pure cultures are introduced into flasks of bouillon.

As a general rule these flasks are stored for two or three weeks in special incubators, where the temperature is maintained by automatic devices at 100.4° F. The flasks are then removed, and the contents critically examined to determine that the cultures have not been contaminated by the presence of other germs. The bouillon is then filtered through paper, and finally through porcelain under high pressure. This filtrate is thereafter known as toxin, and is tested upon guinea-pigs to determine the minimum lethal dose for a pig of standard weight (250 grammes).

After the minimum lethal dose has been determined, the treatment of the animals selected for the elaboration of the serum is begun. The horse has been used commonly for this purpose in the better known serums, although a great many other lower animals have been called upon to render this service. The initial dose of the toxin is necessarily very small, though the quantities subsequently administered are gradually increased until the animal can withstand enormous doses, amounting in some cases to 500 Cc. of virulent toxin, or many thousand times the minimum lethal dose for a standard guinea-pig.

When this point has been reached, the animals are considered immune to the disease, owing to the presence in the blood of large amounts of antitoxin. Nowadays, owing to improved methods, it is considered more desirable to increase the virulence of the toxin of the disease rather than the quantity of the fluid injected. The blood is then drawn from the animal, collected in suitable vessels, and stored under aseptic conditions until the clot separates. When the separation of serum and clot is complete, the former is siphoned off into sterile flasks and a preservative is added. The serum is now filtered to remove all bits of fibrin

or the turbidity which sometimes results from the addition of the preservative.

The serum is examined bacteriologically to determine its absolute freedom from live germs, and the animal from which it was drawn is kept under close observation, from motives of precaution, to establish the fact that it was perfectly healthy at the time the serum was obtained.

The antitoxic value of each cubic centimeter, or the number of units, so-called, is now determined, and the process is complete. We are indebted to Ehrlich, of Frankfort, for our knowledge of how to determine the value of antidiphtheric serum as expressed in units. So far our knowledge has not progressed sufficiently to enable us to apply the same standard to other sera. I take it for granted that you are all thoroughly familiar with the exact meaning of the word unit as applied to sera. If not, I shall be glad to explain later.

The above processes are followed out in the elaboration of nearly all the sera mentioned in this paper. Special technique is, however, employed in many cases, and various modifications and elaborations of the steps mentioned are made by different workers.

CURATIVE SERA.

Class I.—Sera of Demonstrated Efficacy.

Antidiphtheric Serum.—Antidiphtheric serum justly holds the highest place in our opinion. The magnificent record of this remedial agent is known throughout the world. The death-rate of diphtheria, formerly one of the most dreaded diseases, is now reduced to a point where the disease no longer possesses its former terror. I almost venture to say that every case of diphtheria seen early enough, and treated with sufficient quantities of potent serum, may be saved.

Time was when supplies of serum were difficult to obtain and of problematical value, and many cases were unavoidably allowed to go down to death because of the inability of the attending physician to obtain for love or money any of the life-saving serum. At the present time antidiphtheric serum of absolutely definite value may be obtained at nearly every pharmacy in the land. The easy diagnosis of diphtheria, the availability of serum supplies, and the immense

amount of data collected as to its positive value, give rise to the thought that any physician who allows a case of diphtheria to die without using *adequate* doses of the serum is guilty of criminal negligence and unworthy of his place in our profession.

Antistreptococcic Serum.—The anti-streptococcic serum prepared according to the method of Aronson (which has been followed with slight modifications in the production of our own antistreptococcic serum) has possibly given the most satisfactory experimental and clinical results. This is prepared by injecting into horses a single strain of streptococcus whose virulence has been increased by repeated passage through rabbits. Such a serum, in doses of .0005 Cc., has been found to protect mice against 10 minimum lethal doses of a similar culture of streptococcus. It proved to possess an inhibiting action upon streptococci *in vitro*.

A polyvalent serum was prepared by injecting into animals streptococci isolated from various sources—puerperal fever, scarlet fever, erysipelas, tonsillitis, etc. Tavel²² prepared a serum in this manner, while Moser²³ uses several strains of streptococci, all, however, originating from cases of scarlatina.

Menzer²⁴ prepared an antistreptococcic serum for the treatment of articular rheumatism from cocci isolated from the throat (see antirheumatic serum).

It is impossible to resist the conclusion that on the whole the use of anti-streptococcic sera has been disappointing. This was at first attributed to the existence of several strains of streptococci which react differently to a given serum. If this were true, polyvalent sera prepared with several strains of streptococci from different sources should be more generally applicable, producing beneficial results in a greater number of cases. This, however, does not occur, as the monovalent sera have been as satisfactory in every way as the polyvalent. What is probably responsible for the large number of cases in which the serum is used with indifferent results is the fact that many cases of sepsis are complicated by organisms other than streptococci, upon which it can have no effect. In fact, in many cases of sepsis in which the serum has been used the streptococcus is not at

all responsible for the trouble, but the infection is due to other pyogenic bacteria, *e.g.*, *staphylococcus pyogenes*. There is no doubt that in a certain proportion of cases, at all events of pure streptococcic infection, the serum has acted most beneficially.

Success resulting from the use of this serum has been cited by many authors in puerperal infection, erysipelas, chronic articular rheumatism, urticaria, and scarlet fever. Menzer⁴ has contributed an interesting paper on the detailed use of antistreptococcic serum and its application to human medication.

Antistreptococcic sera are somewhat experimental as yet, but on the whole very encouraging for true streptococcic infection.

Antitetanic Sera.—In a recent conversation, Prof. Ehrlich, director of the Imperial Institute for Serum Therapy, of Frankfort, told the writer that the use of antitetanic serum in tetanus was just as specific, just as certain of results, as the use of antidiphtheric serum in diphtheria, the only difficulty being that medical practitioners are prone to use too small doses and to give them too infrequently. He strongly advocates the use of very large initial doses (30 Cc. or more), followed by *frequent* subsequent doses of 10 or 20 Cc. until the desired result is obtained.

The method of administration is subject to some difference of opinion; subcutaneous, intravenous, intraneural, intracerebral, intraspinal by lumbar puncture, all have their advocates.

The use of antitetanic serum as a prophylactic is now regarded as almost obligatory on the part of the attending physician. Wounds in the feet, hands, or, in fact, any part of the body, which have come in contact with street dirt, garden earth, soil from the proximity of stables or gardens, or made with nails or attendant upon the use of firearms, as in 4th of July festivities, should always be treated as though infected with tetanic bacilli. The use of dried antitetanic serum in the form of a dusting powder is advocated by McFarland (*Journal of the American Medical Association*, July 4, 1903), by Letulle (*Presse Médicale*, No. 57), and by Alexander (*Medical and Surgical Monitor*, Sept. 15, 1904). Other observers have dressed these cases

as ordinarily done, but have supplemented the local treatment by subcutaneous injections of antitetanic serum. Laboratory experiments have shown that this treatment is efficacious in 90 per cent of cases of intentionally produced tetanus in laboratory animals.

Antiplague Serum.—Yersin, Calmette, and Borell²⁰ have taken the initiative in the production of a plague immune serum. Yersin's serum, also called the Paris serum, is prepared by injecting into horses, first, bacilli killed at 70° C.; later, highly virulent bacilli; and lastly, their toxins.

Lustig's serum is made by injecting into horses the nucleoproteids which he isolated from cultures of the plague bacillus. An antiplague serum is also manufactured under the directions of Tavel³⁰ in the Berne Institute, prepared in practically the same manner as Yersin's serum. Markl³¹ also prepared a purely antitoxin serum, which, although not of sufficient strength to give any definite results, seems to enhance the value of the Yersin serum when used in combination with it.

A careful review of the entire subject and a consideration of the numerous clinical reports upon the use of antiplague sera lead to the following conclusions:

1. Yersin's (Paris) serum is of value as a remedy for bubonic plague. It should be given early in the case and in large quantities. The serum acts much more energetically when given intravenously than by the subcutaneous route. The dose may be from 60 to 150 Cc., or even 300 Cc.

2. The claims of Lustig's serum as a remedy are less well established than those of Yersin's serum, but some evidence has been adduced in its favor.

3. Yersin's serum may also be used prophylactically, but the protection gained is transitory, so that repeated injections are necessary in the presence of an epidemic.

Antiplague serum is of positive value when given in large doses.

DuPratt⁵⁰ reports the result of the treatment of forty-five cases of bubonic plague with the Roux-Yersin serum. The results obtained were very encouraging, the mortality falling to 13 per cent. Experiments show that the best results were obtained when the initial dosage

was approximately 300 Cc. The injections were all subcutaneous, difficulty being experienced with Calmette's intravenous injection. One frequent effect of the serum injections was general arthrodial pain, which was temporary, however.

Serum for Exophthalmic Goitre.—The first work along the lines of producing a serum for exophthalmic goitre was done by Ballet and Enriquez.⁴² About the same time Lanz⁴³ prepared a serum from thyroidectomized animals, which he claims to have used with good success in this troublesome affection. Merck & Co. prepared a serum of this kind according to the formula of P. J. Moebius.⁴⁴ Several reports have appeared, especially in the German periodicals, upon the therapeutic activity of this preparation. Quite favorable results seem to have been obtained, consisting of marked improvement in the pulse-rate, tremor, and nervous symptoms characteristic of the disease. A gain in weight, increased appetite, and decrease in the size of the tumor were almost invariably noted. The milk of thyroidectomized animals has also been used with good results.

Thyroidectin, a preparation from the whole blood of thyroidectomized animals, has given very promising results in the hands of several eminent neurologists in the United States. Lepine prepared a strictly antithyroid serum by injecting into animals increasing amounts of thyroid gland substance, for which he claims beneficial effects upon Graves's disease.

Exophthalmic goitre has been experimentally treated with tablets of desiccated milk from thyroidectomized goats and cows; the liquid milk taken from these animals after they were subjected to the operation of thyroidectomy; tablets of desiccated blood from thyroidectomized animals; the serum from thyroidectomized animals; and finally the powdered, dried, whole blood.

The clinical course of exophthalmic goitre is so varied that one is justified in withholding an opinion as to the results of any particular method of treatment until very considerable numbers of cases have been followed for a long time. However, when clinicians of the reputation of Moebius and Von Leyden go on record in favor of a method, which is

furthermore founded on a scientific principle, it may be thought to be of no inconsiderable value. Von Leyden⁵¹ has recently published an interesting clinical lecture on the topic.

The literature is fairly full of authorities for the statement that the treatment of exophthalmic goitre by the blood of thyroidectomized animals is followed by improvement in the symptoms of tachycardia, exophthalmos, Graefe's symptom, struma, physical depression, insomnia and headache, and a gradual disappearance of the whole of the morbid symptoms. The treatment must be continued for long periods, possibly years, before a total cessation of symptoms could be considered permanent. The apparent results are so striking as to encourage further use of the serum.

Class II.—Sera Whose Value Remains to be Proved, Though Possible.

Antivenene.—Calmette²⁵ and Fraser²⁶ have prepared sera against snake poison. That of Calmette is now found upon the market under the name of antivenene. In order to understand the action of these sera it is necessary to know that poisons from different snakes are not of the same composition. Independently of the less important agglutinins and hemolysins, we encounter two entirely distinct bodies, namely, neurotoxin and hemorrhagin. The virus of the rattlesnake (*crotalus*) contains little neurotoxin, and acts principally in virtue of the large amount of hemorrhagin which it contains. Since Calmette's serum is prepared by means of the poison of the hooded snake (*cobra*), which is rich in neurotoxin and poor in hemorrhagin, it does not protect against the bite of the rattlesnake; *vice versa*, an anticrotalus serum will not protect against the cobra poison.

From the fact that it is often impossible to ascertain the particular species of snake by which a person has been bitten, it would seem as though a polyvalent serum prepared from the venom of all the common species would be of greater applicability. Little work seems to have been done, and fuller investigation is necessary with regard to the manufacture of a serum of this kind. Antivenene is experimental, but very encouraging.

Anticrotalus Serum.—Shortly after Behring demonstrated the possibility of producing an antitoxin antagonistic to

diphtheria toxin, and Kitasato did the same for tetanus toxin, and Ehrlich for certain vegetable alkaloids, Bertrand and Calmette studied serpent's venom and showed that when animals were injected with progressively increasing doses of cobra venom an antibody antagonistic to the venom appeared in the blood. This was named antivenene. Martin, working in Australia, showed that the Calmette antivenene was useless in antagonizing the venom of Australian snakes, and McFarland in our own country has found its action of little avail against American snakes. Flexner and Noguchi, of the Serum Institute of Copenhagen, have taken up the subject and have been able to produce a high degree of immunity against rattlesnake venom, and to produce in the blood of immunized animals a considerable amount of what they call anti-crotalus serum, antagonistic not only against the toxoids but against the toxins, and consequently against the venom itself. It seems possible that they have given us the method of preparing an antitoxic serum by which we may counteract the action of rattlesnake venom.

Hay-fever Serum.—A. Lübbert has published⁵² directions for the manufacture and use of pollantin, the antitoxic serum recommended against hay-fever. A toxalbumen is isolated from the pollen of grasses liable to set up a catarrh, and this then injected into horses in gradually increasing doses. After two or three weeks a high degree of immunity is established, and the blood is withdrawn and allowed to express its serum. The subcutaneous use of pollantin is not recommended, since the immunity thus conferred is only partial and of short duration; it is much better to apply the serum directly to the nose, eyes, or pharynx. Very obstinate cases should carry a small bottle with dropper with them every day, and resort to an instillation as soon as the first irritation is noticed. If the attack has already set in, the pollantin should be used every ten minutes and the patient instructed to stay indoors.

The effect of "Dunbar's pollantin" differs considerably in different cases. In some the remedy unaccountably fails. The duration of the relief afforded is not long, and repeated instillations of the antitoxin are required. Subcutaneous injections are not advisable, as the local

edema produced is considerable and the amount of protection gained is uncertain.

Tuberculin.—The preparation of tuberculin and its diagnostic value in cattle is too well known to require any further reference. The same product has been used for diagnostic purposes in man, in doses of 1 to 10 milligrammes, but has never become very popular.

As a method of producing active immunity in man, progressively increasing injections of tuberculin have been at one time highly praised, again rejected, and are lately being more carefully investigated.

Koch's³⁶ method of gradually increasing the dose is now used in all instances, the injections never being repeated until the reaction from the previous injection has entirely disappeared. The quantities administered have been considerably decreased since this method of immunization first came in vogue. Originally, Koch gave one milligramme, rapidly increasing the dose up to one cubic centimeter. In two or three weeks he attained 500 times the initial dose. High fever and strong reactions and other unfavorable results were produced by these large doses. At the present time much smaller initial doses are used, 1/10 to 1/20 milligramme, increased very gradually, 1/10 to 1/20 milligramme at a time, and never repeated while the slightest local or systemic disturbance remains from the previous injection. Goetsch,³⁷ Petruschky,³⁸ Krause,³⁹ and others claim to have obtained satisfactory results from this method. Tuberculin must still be regarded as an experimental product for therapeutic purposes.

Antitubercle Serum.—Harricourt³² and Richet first attempted the use of serum derived from unsusceptible animals possessing a more or less well developed natural immunity against tuberculosis. The experiments conducted along these lines gave little promise of ultimate success, and their failure led to artificial immunization of animals against the tubercle bacillus and its toxins.

Maragliano's Serum.—Of all antitubercle sera that of Maragliano³³ has probably attracted the greatest attention. It seems to have the most rational scientific foundation. Maragliano worked upon the supposition that the toxin of tuberculosis is not a single chemical substance,

and attempted to separate it into its component elements. In the culture fluids he found a "toxalbumen" precipitated by heating to 100° F. and producing in healthy as well as tubercular animals hypothermia and sweats, followed by collapse if given in sufficient doses. From the bodies of the bacilli he obtained an aqueous extract having the same effect upon man and animals as glycerin extracts. Besides these he isolated several other less important principles which were not used in the preparation of his serum. The "toxalbumen" and "aqueous extract," in the proportion of one of the former to three of the latter, were used for the production of the serum. This serum possesses the property of neutralizing fatal doses of tuberculin. It has been used in Italy to a large extent. Margliano claims some wonderful results from his serum. Most other observers who have tried it have failed to note any marked improvement. Lately several prominent investigators in his own country have denied that the serum exerts any influence upon the disease.

Fisch³⁴ prepared an antitubercle serum by injecting horses with progressively increasing doses of Koch's T. R., which animal experiments seemed to prove possessed considerable protective properties. This serum has been used considerably in America.

Marmorek³⁵ produced tuberculin by growing tubercle bacilli in a mixture of leucotoxic calf serum and glycerin-liver bouillon. The filtrate from these cultures was injected into horses, and after some eight months treatment produced an antitoxic serum. This serum showed some protective power in rabbits, but very little in guinea-pigs. Marmorek claims favorable results from its use in cases of tuberculosis which are not too far advanced. He does not give the details of his toxin production, nor are his results confirmed by other observers.

The serum diagnosis of tuberculosis has not been given an extended trial in America. Discussion of the subject was recently renewed by Arloing and Courmont at the Congress of Arts and Sciences in St. Louis. These people have found that serum from tubercular patients and fluids from tubercular inflammatory lesions, especially the serum from tubercular pleurisy and tubercular peritonitis,

have the power to agglutinate tubercle bacilli. In the case of non-tubercular affections no agglutination takes place. The authors claim that they have been able to control their clinical findings by autopsies in a large number of cases. The test has been considered by a number of observers both in France and Germany, and though there are some who deny its value, it seems worthy of a more extended trial.

Antirabic Serum.—Babes²⁷ and Lepp were the first to point out the fact that serum of animals immunized against rabies possesses the property of conferring immunity upon other animals. They succeeded in protecting dogs by means of such a serum against subdural inoculations of street virus and natural infection by bites of rabid animals. Rabbits could not be completely protected, although a much longer period of incubation occurred in the cases when the immune serum was given.

Tizonni and Centonni²⁸ confirmed the work of the above observers and produced a highly immune serum, 1½ drops of which protected rabbits against the fatal dose for a 2-kilogramme rabbit.

In 1890 Babes used simultaneous (serum and virus) inoculations with fairly good success. Kraus and his coworkers—Keller, Clairmont, and Maresch—have added valuable contributions upon a rational method of standardizing such sera.

The serum treatment does not seem to have been actually tried on man. It would, however, seem advisable to have recourse to it in cases which are only seen some time after the injury has taken place, and in which there is, therefore, reason to fear that there will not be time enough to produce immunity by Pasteur's method.

Serum for Rheumatism.—Menzer has prepared a serum by injecting into horses streptococci isolated from the throat, which he has used in the treatment of acute and chronic articular rheumatism. If the statistics which he gives upon its therapeutic activity and the tables which he draws up in his article⁵³ in the *Münchener medicinische Wochenschrift* of August 16, 1904, are not made up of selected cases and are reliable, it would certainly seem as though his serum possessed considerable value. Some reports from other observers, however, are by no means

as optimistic, claiming that no specific action can be observed following the administration of the serum, and stating that they would only use the serum as a last resort and would expect very little from its employment. It should be regarded as purely experimental.

Poynton and Shaw reported to the Pathologic Society of London their recent investigation to establish the specific nature of rheumatism. They hold that rheumatic fever is a definite, distinct clinical entity. They believe that the *streptococcus aureus* and the *diplococcus rheumaticus* can be easily distinguished. Their work tends to encourage those who believe in the eventuality of a serum treatment for rheumatic fever.

Class III.—Sera Whose Efficacy is Nil at Present.

Antipneumococcic Serum.—An enormous amount of work has been done by a number of investigators with the object of producing a serum against pneumonia. G. and F. Klemperer,⁶ Mosny,⁷ and Foa⁸ believed that an antitoxin could be demonstrated in the serum of animals highly immunized against the pneumococcus. Other experimenters, followers of Metschnikoff, ascribe an important rôle to the process of phagocytosis in the production of immunity against diplococcus pneumoniae.

Issaëff⁹ and Mennes¹⁰ claimed that they observed under the microscope that the leucocytes, which behaved rather indifferently toward pneumococci in normal serum, attacked these organisms very energetically in the presence of a pneumonia immune serum. Pane¹¹ thinks that upon contact with immune sera the leucocytes acquire the property of giving off substances which confer immunity against the pneumococcus upon the organism. Bonome¹² and Emmerich¹³ demonstrated that any protective power which the serum of immunized animals possesses is due entirely to an increase in the natural bactericidal properties of the patient's serum.

By injecting into horses a particularly virulent strain of pneumococcus an immune serum has been produced. This product, when placed in the hands of careful observers for clinical trial, failed to come up to expectations; no influence upon the disease could be attributed to it.

The results obtained up to the present

with all antipneumococcic sera are disappointing. Some effects seem to be noted in animals. In man, none of the sera at present obtainable seem to exert any very beneficial influence upon the disease. It is possible that the immune bodies formed in the lower animals do not find suitable complement in man. There may be different strains of pneumococci which react differently to antibodies. More might be expected from an antitoxic than a bactericidal serum, as pneumonia presents symptoms of profound intoxication; but as it has not been possible to obtain potent toxins from the diplococcus pneumoniae, no such serum is at present available, nor is there any immediate prospect of its preparation. Antipneumococcic serum is most decidedly experimental.

Roemer's pneumococcic serum has been used in the treatment of corneal ulcers. It is possible, according to Roemer, so to immunize rabbits and monkeys with respect to pneumococci that the inoculation of highly virulent organisms into the corneae of these animals fails to give rise to inflammation. He likewise succeeded in inhibiting the development of a corneal ulcer which had already begun to form in the eye of an animal. In the case of man, however, considerable clinical experience is needed before the merits of the serum treatment can be discussed.

It has been noticed that there is a peculiar coincident nephritis in many cases treated with serum. This has been explained by some observers on the ground that it is the protest of the kidney to the overwork necessitated by the introduction into the body of such large quantities of foreign albuminous material.

In the presence of the writer, at the meeting of the American Medical Association, in Saratoga, in 1902, Osler declared that the condition of pneumonia therapeutically was a disgrace to the medical profession, that a mortality rate of 40 per cent was simply fearful, and yet medical men could look upon it without the quiver of an eyelash. Since that time, however, the condition has changed very slightly if at all. Tremendous labor and enormous expenditures of money have as yet produced nothing in the way of a curative serum for the treatment of pneumonia which possesses anything but a negative value. The writer has been personally engaged in work along this line for nearly

three years, and has yet to learn of the production of an antipneumococcic serum in support of whose efficacy any absolutely incontrovertible evidence can be brought. The outlook is rather discouraging.

Antidysenteric Serum.—The first practical application of an antidysenteric serum for the treatment of dysentery was made by Shiga.¹ He used a serum from horses which had been highly immunized against this bacillus. A few milligrammes of this serum protected guinea-pigs against five times the minimum lethal dose of dysentery bacilli. By using this serum he claims to have reduced the mortality from the disease 50 per cent. Kruse² prepared a similar serum and noted a reduction in mortality of from 11 to 8 per cent. Rosenthal³ treated 157 cases with Gabritchewski's serum,⁴ with a death-rate of 4.5 per cent, as against a mortality of 10 to 11 per cent in the cases treated without serum. These cannot be considered as unbiased reports, as subsequent experience has failed to corroborate their statement. Our own experience with a serum of this kind was anything but encouraging. Judging from reports received it exerted no perceptible influence upon the severity or the duration of the disease.

At the recent meeting of the American Pediatric Society, in Detroit, in 1904, it seemed to be the consensus of opinion that the use of antidysenteric serum was very disappointing indeed. It is true that certain sera have been elaborated, the use of which has been followed by very gratifying results in a certain number of cases. It is also true, however, and at the same time unfortunate, that other series of cases treated with the same serum apparently showed no effect from its administration. The best results have been obtained from the use of a polyvalent serum made by immunizing horses with the toxins of several strains of the bacillus. Of course, it is understood that we refer to bacillary dysentery and not to the amebic variety, of which there are doubtless a great many more cases in this country than is generally supposed. Antidysenteric serum is most decidedly experimental.

Antiscarlatinal Serum.—A strictly antiscarlatinal serum was first prepared by Moser.⁵ He made use of several strep-

tococci, all originating from cases of scarlet fever, with which he immunized horses. This serum was tested clinically by Escherich. He reports that the mortality was reduced by means of it to 9 per cent, whereas in other hospitals at the same time, where the serum was not used, the death-rate amounted to 14 per cent. Very few authorities still consider the streptococcus as the etiological factor in scarlet fever. The influence of an anti-streptococcic serum must then be merely of an indirect nature, placing the system in a more favorable condition to cope with the main infection by counteracting the secondary infection. Strictly antiscarlatinal sera do not seem to exert a more favorable influence upon the disease than immune sera obtained by immunization with streptococci from sources other than scarlet fever. It is still highly experimental.

I am well aware of the fact that supplies of antipneumococcic, antiscarlatinal, and antidysenteric sera can be purchased in the market from manufacturers who have no hesitancy about recommending their use, but an impartial survey of all the evidence in behalf of their efficacy causes me to apply the Scotch verdict "not proven."

Antityphoid Serum.—No definite results have as yet been obtained by any specific serum therapy of typhoid fever. Chantemesse and Widal¹⁴ first produced a serum from guinea-pigs by injecting cultures of bacillus typhosus. Their results were negative. Klemperer and Levy¹⁵ shortly after had no better success. Hammerschlag¹⁶ tried the injection of serum from patients recovered from the disease, without being able to show that it possessed any special protective properties.

Wasserman¹⁷ explains the lack of success in the use of antityphoid sera by the fact that they are bactericidal sera, which, although they may be rich in immune bodies, do not meet in the human organism a sufficient amount of activating complement. Pfeiffer and Kolle¹⁸ went even further, and showed that all bactericidal sera, under certain circumstances, are in a position to cause rapid lytic action upon the bacilli present in the system, with consequent liberation of the intracellular toxins and aggravation of the disease.

The only method which gave any con-

siderable promise of success seemed to be to isolate the intracellular toxins of the bacilli, and by means of these to produce an antitoxin serum. Brieger, Kitasato, Wasserman,¹⁹ Kolle, and Pfeiffer were unable to obtain these toxins in any appreciable quantities.

Chantemesse,²⁰ by growing typhoid bacilli in a maceration of spleen substance, to which had been added defibrinated human blood, claims to have obtained a typhoid toxin, 1 cubic centimeter of which will kill an 80-gramme guinea-pig. He made a serum by injecting this toxin into horses. Out of 507 cases treated with this serum he reports a mortality as low as 6 per cent.

Antityphoid sera were prepared in our laboratory by injecting progressively increasing doses of several strains of typhoid bacilli. A serum was obtained which agglutinated the respective bacilli used for inoculation, depending upon the particular bacillus agglutinated, in dilutions of from 20,000 to 4,000,000. This remarkably powerful agglutinating serum showed no protective properties in guinea-pigs receiving a minimum lethal dose of typhoid culture. Clinical results obtained with the same serum were very unsatisfactory, so that for the present time our work along this line has been discontinued.

The following conclusions may be drawn:

1. The bactericidal sera on the market at the present time, called antityphoid, are generally unsatisfactory in their effects—indeed, it is doubtful whether they can be said to have any influence at all upon the course of the disease.

2. Good results are reported with Chantemesse's antitoxic serum, but there is not yet sufficient material on which to base an opinion.

Serum for Cerebrospinal Fever.—The bulk of work which has been done upon immunization against the *diplococcus meningitidis* we owe to Lepierre.⁴⁸ He produced a serum in small animals (rabbits and guinea-pigs) by the injection of whole cultures, which possessed both antitoxic and bactericidal properties. The animals did not bear this method of immunization very satisfactorily, several of them developing cachexia and succumbing during the course of the treatment. Immunization was also attempted with

cultures killed by heating to 66° to 68°, and also with chloroform-killed cultures. The antitoxic, preventive, and curative properties of sera thus prepared are not considerable, as shown by animal experiments. There is no record of such a serum being used on man.

From this we see that the experiments made up to the present time upon the production of immunity against a serum for cerebrospinal meningitis are not only few in number but very unsatisfactory, and allow of no definite conclusion.

In the daily press Dr. Darlington, of the New York State Board of Health, is quoted as saying that a commission formed to investigate the epidemic of cerebrospinal meningitis raging in the city has decided, after exhaustive investigation and experimentation, that the so-called serum treatment of this disease is practically worthless.

Antivarioloid Serum.—A lack of definite data upon the etiology of smallpox makes it impossible to adopt any specific serum therapy. Cows used for the production of vaccine have been bled some two weeks after recovery, and their serum has been shown to possess some antivarioloid properties. These, however, were weak, and no marked influence upon the course of variola has been observed after the use of such sera.

Serum for Cancer.—Charcot⁴⁶ prepared a cancer serum, finely dividing the tissue of a primary carcinoma of the breast, and injecting an emulsion into goats, sheep, and horses. The serum collected aseptically was injected in doses of 20 to 30 Cc. (90 Cc. weekly) for several months into patients afflicted with inoperable cancers. The blood serum of patients thus treated showed, after four or five injections, hemolytic properties toward the red corpuscles of animals whose serum was used for injection.

Adamkiewicz⁴⁷ reports upon a number of cases of cancer which were favorably influenced by the administration of cancerin, as prepared by himself. A number of these cases he considers completely cured. His results, however, have not been confirmed by other observers, and no very marked influence upon the disease can be attributed to any of these preparations.

The only remedy which can be said to have established any pretense to efficacy

in the treatment of malignant growths is Coley's fluid (erysipelas and prodigious toxins). This has been found of some value, especially in the case of sarcomata.

Until it is proved that cancer is an infective disease, serum treatment of the usual kind is inapplicable to this condition. Doyen inoculated horses with his micrococcus neoformans, which he considers the etiological factor in the production of cancer. The serum thus obtained was tried clinically with what he considers favorable results. These results, however, are not convincing. It is permissible to hope that it may be possible to produce a cytolytic serum which may act on the cells of the growth without affecting the normal cells of the tissues. A satisfactory serum of this nature is yet to be prepared. Cancer sera are most decidedly experimental.

Leprolin.—By cultivation upon special media which he prepared, Rost⁴⁵ has succeeded in obtaining from the bacillus lepræ a concentrated toxin which he named leprolin. This he used in the same manner as Koch used his tuberculin for the cure of consumption. Gradually increasing quantities of this toxin are injected into patients. A reactionary fever is observed after such injections, which showed rise to 100° F. If the reactionary fever is not marked, larger doses are given, and improvement of the symptoms has always followed. This remedy will require much more extended clinical investigation before definite conclusions can be drawn relative to its value.

Serum for Syphilis.—Justin De Lisle studied the etiology of syphilis and claims that the disease is due to a bacillus always present in the blood of syphilitics, although not visible by microscopic methods until it has been cultivated in collodion sacs. After the preliminary cultivation in collodion sacs they are readily visible as short slender rods and easily grown upon the ordinary culture media. With cultures of this bacillus he made attempts to immunize horses. He claims that a serum thus obtained shows marked curative properties in luetic cases. His results have not been confirmed by others.

With a pseudodiphtheria bacillus isolated from the blood of cases of secondary syphilis, which he considers the etiological factor of the disease, Paulsen prepared an antisiphilitic serum. A report was pub-

lished by him upon the clinical value of this serum, which he used in fourteen cases of syphilis. The etiological relation to syphilis of the particular organism used by this investigator is not recognized by other observers. The therapeutic results obtained by means of the serum are very questionable. One case was "cured in three weeks." It is, however, not shown what Paulsen considers a cure (nothing is said as to the length of time these cases were under observation); probably his cure merely amounted to a disappearance of the secondary eruption. In other cases they were obliged, "notwithstanding the favorable influence exerted by the serum, to have recourse to mercury, as the healing process was somewhat slow." Thus, notwithstanding the use of the serum, mercury seems to have been the only effective weapon against the disease.

Anthrax Serum.—In 1893, and later in 1899, Kitt⁴⁰ undertook a series of experiments which showed that an immune serum can be prepared from sheep, goats, horses and cattle when these animals are treated by intravenous or subcutaneous inoculations of virus (toxic infectious tissue juices). After a few injections the blood of animals so treated rapidly acquires a large quantity of immune bodies.

In 1900 Arloing, and in 1901 Leclainche-Vallee,⁴¹ carried on similar experiments and prepared a horse and goat serum, 1 to 5 Cc. of which protected guinea-pigs against undoubtedly fatal doses of anthrax. The immunity conferred by such sera appears as soon as twelve hours after injection, but lasts only about eight days. The curative properties of such sera are not very marked, as is shown by Arloing. A serum injection given less than nine hours after injection was able to protect the animals, whereas if twelve hours had intervened between the inoculations with virus and the serum injection no beneficial effect was observed, even when the latter was used in large doses.

From the above it appears that a satisfactory anthrax serum has not as yet been produced. The only manner in which they have given any measure of success is in simultaneously (serum and virus) prophylactic inoculations. In this method a preliminary injection of serum is given which allows of using subsequently a much stronger virus for vaccination.

Treatment of Yellow Fever with Anti-ophidic Serum.—Rodrigues's statements in regard to the efficacy of treatment of yellow fever with a serum made to combat the bites of poisonous snakes of Brazil have not been confirmed by the experiences of others. Carlos Seidl and Marchoux and Simond gave the method a trial, but met with negative results. The first to suggest serum treatment of yellow fever was Prof. Miguel Couto, of Rio, who treated several yellow fever patients with serum from convalescents. His communication on the subject was published in the *Brazil Medico* of April 22, 1892. Rodrigues reports rapid recovery of twenty-four yellow fever patients, with but one exception, under treatment with anticrotalic and antithroptic sera.

Antimalarial Serum.—Ford, of the U. S. army, has been making a strenuous attempt to provide a serum for tertian malaria. This investigator has been working for some time and has evolved certain results of more than ordinary interest. As yet, however, little has been discovered in the way of immunizing or curative sera for diseases of protozoön origin (*Medical Record*, Dec. 24, 1904).

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4219 CALUMET AVENUE.

THE TREATMENT OF UREMIA.

By W. J. WILSON, JR., M.D.,

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While the treatment of uremia is not in the satisfactory condition which we could desire, the etiology being in such an unsettled state, the general indications are plain. As this condition generally arises in the course of an attack of nephritis of whatever type, the more successful we are in combating its course and untoward symptoms, the less likelihood of uremia.

While the exact toxic agent is unknown, we are assured that certain toxic agents floating in the blood bring about

the various symptoms. Elimination of these, then, is the first thing to secure if possible. As the function of the kidney is disturbed, we have to seek the assistance of other means, and of first importance in the general treatment is careful attention to the bowels. Where especially the person is plethoric, or the blood is hydremic or dropsical symptoms have supervened, the saline cathartics, either as such or in the form of the natural aperient waters, are indicated. In overeaters the diet should be restricted to a rational amount, but the authorities of recent years do not restrict the patient as much as to the kind of food as those of former years, allowing not only white meats but also red meats, the idea being that the outlook is not nearly so favorable as otherwise when the general nutrition is not kept up by a wisely chosen liberal diet; however, in acute exacerbations the patient is to be put on an exclusive milk diet. All the ordinary hygienic measures are to be attended to. Although the question whether dropsical conditions are the indirect cause of uremia is still undecided, yet many clinicians believe so, and pay much attention to this factor. Tavel has lately reported the very successful use of dechloridization in the relief of these conditions, and certainly on theoretical grounds alone it would be good policy to restrict the chlorides.

The medicinal treatment of uremic convulsions in general consists in the administration of chloral, the bromides, and at times morphine. Provided there is high arterial tension, nitroglycerin and aconite or veratrum viride are employed; when tension is low, digitalis or caffeine is ordinarily used.

Persistent headache and sleeplessness should cause us to examine the urine, and suspect uremia as the causative factor. When such is discovered, chloral, bromide, and possibly morphine, with thorough depletion, are useful. Lately lumbar puncture has been done with good results.

Another frequent symptom is dyspnea, which may be due to pleural effusion, to great accumulation of fluid in the abdominal cavity, to contraction of the bronchial muscles, to disturbance of the respiratory center, and to acute dilatation of the heart. Appropriate measures must be used. In the latter condition a com-

bination of digitalin and nitroglycerin, of each 1/100 grain, hypodermically, is often very efficient. Caffeine is also exceedingly useful, being given in the form of strong coffee, or caffeine citrate hypodermically. If the secretion of urine is diminished and the attack is not acute, caffeine, or theobromine and sodium salicylate, is the most efficient diuretic, the latter being useful regardless of the arterial tension, and the caffeine especially when the tension is low.

Various changes are produced in the vision, blindness oftentimes resulting either as the outcome of a retinitis, or without objective signs evidently due to functional changes in the nerve centers. The general treatment applies to this condition, and the assistance of an oculist to help in the study and treatment of the case is to be secured.

The vomiting is treated on general principles, being often relieved by the exhibition of chloral in those cases central in origin, while those due to the excretion of urea into the stomach and intestine are relieved better by local measures.

The rise of temperature in uremia is ordinarily of no consequence; when necessary, its reduction is secured by the use of the warm pack.

The treatment of delirium by the use of chloral and the bromides is very efficient. Coma must be met by general depletion, venesection, or by lumbar puncture, McVail reporting two very serious cases which recovered after using this method of treatment.

Cramps in the muscles are best overcome by the chloral and bromide mixture.

As for the treatment of uremic convulsions, that most dreaded complication in either acute or chronic nephritis as that complicating pregnancy, chloroform is first administered to control the convulsions. To secure thorough movement of the bowels, croton oil in from one- to five-minim doses in a little sweet oil is given by way of the mouth. As soon as possible chloral hydrate (10 to 30 grains) and sodium bromide (30 grains or more) are given either by the mouth or per rectum. Tincture of veratrum viride (Norwood's) in four-minim doses is administered every hour or two until the pulse comes down to about 60. If the patient be plethoric 12 to 30 ounces of blood should be ab-

stracted by venesection; in anemic patients when this measure is used, the amount of fluid is to be replaced by normal saline solution. The patient should also be placed in a hot pack, or may be given either a dry hot-air bath or vapor bath. The use of pilocarpine, from its depressing qualities and uncertain action, as well as its tendency to cause edema of the lung, is not as general as formerly. As to the employment of morphine, most authorities condemn its use, except in those cases complicating acute parenchymatous nephritis. In case of pregnancy, these same measures are to be used, and provided labor does not set in spontaneously, and the convulsions are not relieved, either vaginal Cæsarian section or some other quick method of emptying the uterus must be employed.

In conclusion, we might summarize as follows:

In cases of dyspnea, persistent headache, and sleeplessness, persistent vomiting, spasmodic contraction of muscles, epileptiform convulsions, delirium, and coma, the urine should be examined, to determine whether uremia is the etiologic factor.

Chloroform, chloral, the bromides, with veratrum viride, which seems to some extent antidotal to the poisons generating this condition, are the most dependable drugs to relieve the various symptoms.

Morphine is to be used particularly in case of acute parenchymatous nephritis, and when used should be carefully watched and given in small doses, on account of its bad effect on elimination.

When the arterial tension is high, nitroglycerin, aconite, or veratrum viride is indicated; when low, digitalis and caffeine are to be used.

THE TREATMENT OF CONSTIPATION IN WOMEN.¹

BY FRANK C. HAMMOND, M.D.,

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You will readily recall that constipation is the single complaint most fre-

quently made by your female patients. It may be said that most persons to be in health require to have a stool daily. Exceptions do occur: some women habitually have a movement only once in two days and enjoy good health. Riesmann mentions the case of a girl who had her bowels moved only once a month, at her menstrual period; the girl's mother would usually go two weeks without a movement. Munroe (*Cincinnati Lancet-Clinic*, Nov. 3, 1904) reports the case of a man who lived to the age of seventy-seven, in good health up to within two years of his death, who defecated only twice a month.

Of the many causes of constipation in women may be mentioned the following: a sedentary life; simple laziness; modesty, because a woman prefers to suffer rather than go to a closet which is publicly located; tight lacing; the train of causes resulting from the violation of hygienic laws; defective innervation; sluggishness of bowel function; the habitual use of purgative medicines; painful affections of the anus; weakness of the abdominal muscles; improper dress; repeated pregnancies; retrodisplacements of the uterus; laceration of the pelvic floor; excessive acidity of the stomach; gastric atony; the eating of too nourishing food to the exclusion of other foods; psychic influences; obstruction of the biliary passages and cancer of the head of the pancreas; obesity; the abuse of enemas and suppositories; compression of the intestines, by the pregnant uterus, tumors, exudates, or constricting peritoneal bands; diseases of the heart, lungs, liver, and kidneys, especially when associated with passive congestion of the intestines; tumors of the intestines; chronic catarrhal enteritis; displacements and malformations of the intestines; lesions of the rectum; chronic intussusception; strictures, following dysentery, typhoid fever, and tuberculosis.

The treatment of constipation is often a matter requiring great judgment and patience. Remove the cause if it can be ascertained.

Much can be accomplished by educational means, impressing upon the patient the importance of going regularly to stool, as nearly as possible at the same hour, whether the desire is felt or not, and remaining for a sufficient length of time.

¹Read before the Associated Physicians and Surgeons of the Charity Hospital, Philadelphia, March 4, 1905.

After a stool occurs a few minutes should be given to see if a further amount of fecal matter will find its way into the rectum, a thing which often happens. It is preferable not to allow this to remain in the rectum, for it will blunt the sensibility of the mucous membrane, and so delay the cure. How frequently in making a bimanual examination is fecal matter detected in the rectum? Water-closets should be made comfortable, and privies should be sheltered and unexposed. The relation which faulty closet accommodations bears to the diseases of women is very important.

Dietetics play an important rôle; each case should be individually studied. Exercise is of value. Massage is beneficial in some cases, and electricity has its advocates.

Of the curative class of laxatives none compare to *cascara sagrada*. This is the only drug which alone moves the bowels, and at the same time tends to render future passages more easy and regular.

The doses of the ingredients in the pill of aloin, belladonna, strychnia, and *cascara* should be so regulated as to avoid its acting too strongly the next morning. It would be preferable to combine these with nux and iron and give at least three times a day. The laxative should be diminished each time the prescription is renewed until only the nux and iron remain.

Strong laxatives tend to congest the abdominal and pelvic viscera—the very condition we wish to relieve—and should therefore be avoided.

Mineral waters, magnesium sulphate, magnesium citrate, sodium phosphate, and Carlsbad salts are very efficacious. They are best given in copious draughts upon rising in the morning.

Dudley (*Text-book of Diseases of Women*) is partial to calomel, 1/30 to 1/10 grain t.i.d., for a variable period. It establishes a steady flow of bile, which is a most effective intestinal antiseptic, renders the glandular organs more active, dislodges morbid accumulations, and secures proper elimination through the bowel and kidneys. All this balances the circulation and stimulates nutrition. In the continued use of mercurial salts always observe the usual rule to secure normal freedom of the bowel, if necessary by the judicious use of salines. The lat-

ter fact should be borne in mind to overcome the constipating effects of Blaud's mass in its administration for anemia and chlorosis.

In the early treatment of obstinate constipation colonic irrigations with one to three quarts of warm soap-suds and water, or of a one-per-cent solution of sodium bicarbonate, are helpful; five per cent glycerin adds to their effectiveness. They should be given in the Sims position; the knee-chest posture would be preferable. Bearing down and dragging pains, backache, intestinal distention, intestinal indigestion, and depression frequently promptly disappear following the clearing out of the bowels.

Abdominal supporters may be used when there is ptosis of the stomach or colon, or diastasis of the recti muscles.

My gynecological confrères in their discussion will lay great stress on the frequency of retrodisplacements of the uterus as an etiologic factor in constipation. Lucy Waite (Pan-American Medical Congress, 1904) says that there are some gynecological superstitions which are hard to overthrow. One is that retrodeviation of the uterus is a cause of constipation. It could not be proved either by dissection or examination. She had 500 cases analyzed, but could not trace constipation to posture of the uterus alone. The uterus was found in anterior position in 60 per cent, in retroposition in 40 per cent. Nevertheless, I believe that in some cases it is a factor. Large accumulations of old hard fecal matter displace and keep up a constant engorgement of the uterus and other pelvic organs. The treatment of constipation is therefore essential.

There is a form of rectal constipation which occasions and is the result of the pulling down of the rectovaginal septum, thereby forming a pouch (rectocele), changing the direction of the intra-abdomino-rectal pressure to that of the vaginal, which is at right angles to it, and making it difficult for the rectal sphincter to relax to void the contents of the bowel. Lacerations of the pelvic floor demand surgical interference in order to correct the rectocele, thereby restoring the lacerated levator ani and transversus perinei muscles and correcting the prolapse of the rectovaginal septum.

The presence of tumors, adhesions, and other mechanical causes requires surgical interference.

Oil irrigations are very popular with some observers. In most obstinate cases of constipation, especially when due to spasmodic contraction of the bowel, Herschell considers the methodical use of oil injections an exceedingly useful procedure, especially in cases of mucomembranous colitis. Not only is the constipation relieved, but the amount of mucus is remarkably reduced. This treatment will probably not do good in cases dependent upon improper food or the result of pyloric stenosis or gastric myasthenia; but invariably good results are obtained in cases depending upon chronic colitis, and in constipation associated with spasm of the bowel such as is frequently seen in neurasthenics, and in constipation due to atony of the intestines. The above observer says that failure to obtain good results is due to improper use of the drug. The apparatus he uses consists of a funnel-shaped glass receptacle with a rubber tube attached thereto, as to a funnel. In the other end of the rubber tube is inserted the hard-rubber rectal piece. The funnel-shaped receptacle is suspended to a hook, and the contained oil is allowed to pass into the rectum through the rubber tube. The tube should be of large caliber. The outflow of the oil is controlled by a spring clip. By this method no assistance is necessary, except that which the patient renders himself. Riesman advocates 2 to 4 ounces of oil injected before retiring and retained all night. This is repeated every two or three days. He has seen patients cured by the ether spray on the bare abdomen. When the oil injections have failed, Lockwood (*Medical News*, vol. lxxiii, No. 24) suggests the injection of 6 to 8 ounces of oil while the patient is lying on the left side with the hips elevated, then turning over on the back, and finally on the right side. There is rarely an immediate result, but the influence persists for three to five days. He reports the case of an unmarried woman forty-eight years of age, who had been obstinately constipated for thirty-two years, only obtaining relief with the aid of large doses of laxatives or huge enemas. There was gastroptosis and coloptosis. Digestion was normal. Irrigations with oil at intervals of five days resulted in a cure.

Where enemas are indicated Knopf uses one or two ounces of glycerin or about 10 ounces of linseed oil, alternately with the hot-water injections, as routine treatment with hot water tends to further diminish the lost tonicity of the lower bowel.

J. R. Leadsworth (*St. Paul Medical and Surgical Journal*, November, 1901) advocates the graduated enema. This form of intestinal irrigation is administered in the same way as the ordinary enema or the coloclyster, and differs from it only in the fact that each day the amount of water is diminished, and the temperature lowered. A very good plan to adopt is as follows: Beginning with three pints of water at a temperature about that of the body, the amount of warm water introduced each day is diminished by half a pint, one-quarter pint of cold water being added, making the total amount of the fluid one-quarter of a pint less each day. At the end of the twelfth day the enema consists of 4 per cent of cold water. In the majority of cases the decrease in temperature will compensate in stimulating effect for the diminished quantity; so that the bowel is thus brought to a more natural state, and weaned from the necessity of distention with warm water in order to provoke an evacuative movement. The graduated enema is exceedingly useful as a means of overcoming the enema habit.

Habitual constipation is frequently relieved by lavage of the stomach; this is attributed to excitation of peristalsis. A certain percentage of individuals suffering from habitual constipation are apt to have a spontaneous movement of the bowels the following day after the stomach has been washed for the first time. Spivak (*Journal of the American Medical Association*, vol. xxxvi, No. 15) claims that the majority of such patients will eventually recover the normal function of their bowels if lavage is continued daily for two to three weeks, and later at greater intervals. The best results follow the use of cold water, or hot and cold alternately, one hour before breakfast for three weeks, and then at greater intervals.

Pennington (*Journal of the American Medical Association*, vol. xxxiv, p. 1523) believes that the tortuosity of the sigmoid flexure, together with the hyperplasia,

irregularity, and deformity of the valves, frequently forms the principal primitive cause of so-called obstinate constipation. These conditions and obstructions favor germ infection and the development of chronic interstitial tissue. This interstitial tissue surrounds the glands in the mucosa, contracts on them and prevents their secretion, with resulting dry and hardened stools, which finally causes atrophy of the glands. It also causes loss of flexibility in the muscular tunics and muscular insufficiency. These pathologic conditions seem sooner or later to result in obstinate constipation or obstinate obstipation and its results. The diagnosis of the obstruction offered by these valves is made by the symptoms of the obstipated patient and by intrarectal inspection. The treatment consists in clipping the rectal valves with a valve clip, an instrument especially devised by Pennington.

R. Schutz (*Berliner klinische Wochenschrift*, 36 Jahrg., No. 28) emphasizes the importance of examining the feces in cases of intestinal disease; the most important determination that is possible by an examination of the stools is whether mucus is present or not. Mucus in pathological quantities proves in cases of constipation (barring the readily diagnosed colica mucosa) the existence of intestinal catarrh, which is practically always a colonic catarrh. The discharge of pure mucus without feces, as well as the complete envelopment with mucus of solid scybala, especially small ones, points to catarrh of the lowest section of the intestine.

It would not be consistent to suggest up-to-date methods of treatment without referring to the bacterial treatment.

"Some recent researches of Roos, of Freiburg (editorial, *Medical Press*, quoted by *American Medicine*, vol. ii, p. 88), into the bacterial treatment of constipation deserves careful attention. He found that cultures of bacillus coli communis, derived from persons whose bowels were active, effected a cure when administered to persons suffering from constipation. His experiments were carried out upon himself and upon some half-dozen medical friends. Accepting the facts as stated, it follows that there is a difference in the activity and vital reaction of various members of the bacillus coli group. In connection with this sub-

ject it may be pointed out that some observers have described a form of diarrhea associated with bacillus coli. Again the origin of the more or less summer diarrhea has been attributed to the pollution of town dust by the bowel bacteria of the horse. It would be not a little interesting to learn whether Roos has conducted his researches into the relation of the equine bacillus coli to the constipation of man. In any case he has opened up a most interesting and suggestive line of observation, and one that promises to yield practical results in the direction of treatment. The subject of the bacteriology of the intestine, both in health and in disease, is enormously wide and important, and offers a fine field of investigation to the rising generation of bacteriologists." In all the experiments the cultures were taken in capsules coated with collodion and then with keratin to avoid contact with the gastric juice.

Constipation from spasmodic contraction of the large intestine (*Presse Médicale* (Paris), June 22, 1901), which has been only lately understood, requires an entirely different treatment from constipation due to intestinal atony. It is distinctly a neuropathic affection, the result of diminished nerve force. It differs from constipation due to atony by its prevalence in women, by the influence of emotion, brain work, responsibilities, etc., on its production and exacerbations, the lack of dyspeptic antecedents and its variability and absolute irregularity, and its absence of connection with the diet. The constipation is exaggerated before menstruation, and diminished after it is once established, which is the exact reverse of the condition observed in constipation from atony. The feces are flat, or in tiny balls covered with mucus. Rectal enemata are sometimes introduced with great difficulty and frequently are retained, causing colic. Medication should be antispasmodic, both local and general, with adjuvants of various kinds to restore tone to the nervous system. Belladonna heads the list. Asafetida, valerianate of zinc, and laudanum are also valuable, combined with warm sitz-baths, compresses, and rectal irrigation, with light massage and measures to strengthen the nervous system and general health. All depressants, such as bromides, must be avoided; also alcohol, hot drinks, spiced

foods, etc. Purgatives are contra-indicated, but a mild laxative is required during the exacerbation of the constipation. The treatment should be completed by a course of tonic sedative waters.

A very annoying and distressing condition is constipation with hemorrhoids. If there is a reducible retrodisplacement of the uterus and a good pelvic floor, replace the fundus uteri and introduce a pessary, in order that palliative measures may be effectual. If the uterus is irreducible, it is doubtful if relief can be afforded without surgical interference for its correction. The only radical cure for the hemorrhoids is operation. Constipation should be corrected in any form of hemorrhoids. The pulv. glycyrrhiza comp. in moderate doses is of use under such circumstances. A preparation containing equal parts of sulphur and cream of tartar is successful in overcoming the constipation. The prescription may be written as follows:

℞ Sulphur. precipitati,
Potassii bitartratis, āā ʒvj.

M. Ft. in chart No. vj. Sig.: One on rising in the morning.

It is needless to say that preparations containing aloes should never be administered to patients with any signs of hemorrhoids, for aloes even when given in moderate doses acts almost entirely on the lower bowel, producing a congestion of its mucosa.

Roviart and Bertin (*Bulletin Général de Thérapeutique*, May 8, 1901) have used hypodermic injections of apocodeine hydrochlorate in thirty-four patients suffering from habitual constipation. All were relieved with one exception. The following solution was used:

Apocodeinæ hydrochloratis, grs. vijss;
Sterilized water, fʒjss.

Dose, one-third of a grain.

The only inconvenience noted was sharp pain in the place of injection. This can be avoided by making intermuscular injections. The properties of apocodeine are very similar to apomorphine. It is prepared from codeine by a process similar to the manufacture of apomorphine from morphine.

In cases which he terms emotional constipation Boas (*International Clinics*, vol. iii, 14 series, 1904) has obtained excellent results from the rest cure. The patient is absolutely isolated for fourteen

days and is not allowed to leave her bed. The nourishment must be regulated for each day and each meal.

ANTISTREPTOCOCCUS SERUMS IN SCARLATINA.

L. MENDELSON reports his experience with Aronson's antistreptococcus serum for scarlet fever (*Deutsche med. Wochenschrift*, March 23, 1905). When properly used, the serum has no further bad effects than other serums have. Of the 144 cases in which it was used, 32 per cent showed the antitoxic rash. This was generally accompanied by fever and disturbance of general health. In six cases swelling of joints accompanied the rash, and was certainly due to the injections. In four cases the swelling of joints occurred without a rash, and may have been due to the serum or to the scarlatina. His general impression has been that the serum has not shown any distinct beneficial influence on the course of the disease. He appends a number of temperature curves, showing the various ways in which the fever comes to an end. To make this clear he compares the curves with those of cases in which no serum was employed, and points out the great similarity. Clearing up of the exudation took place somewhat quickly. He employed local methods of treating the throat, and one must bear in mind that the sore throat of scarlet fever often passes off rapidly. The septic and malignant cases all did badly. The only beneficial effect appears to be the diminished number of severe lymphadenitis cases as sequelæ. Nephritis followed about as usual in the injected cases.

The mortality of the whole of his clinical material was 9.2 per cent; three children died within a few hours of admission, and all the rest of the fatal cases were septic or malignant, with one exception, in which death was due to meningitis following otitis media and mastoiditis. In four other cases he tried Moser's serum, and gained a better impression of the action of this than of Aronson's. He gives the details of these four cases. In one the serum failed, but in another appeared to do considerable good. All were severe.—*British Medical Journal*, May 27, 1905.

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Leading Articles.

THE USE OF HEAVY PETROLEUM PRODUCTS AS INTESTINAL EVACUANTS.

Most of our readers are probably aware of the fact that the heavy coal-tar products, variously known under the names of petrolatum, vaselin, cosmoline, albolene, etc., pass through the alimentary canal unaltered and unabsorbed. About twenty years ago the late Dr. Randolph, then Professor of Hygiene in the University of Pennsylvania, carried out a series of experiments which proved the inactivity of these substances except as mechanical agents, and since that time several clinical reports have been made by physicians who have employed them either with the idea that they possessed a physiological effect upon the general economy, or with a recognition of the fact that they simply acted as lubricants, and perhaps possessed some slight antiseptic power. Several years ago we published in the GAZETTE a paper in which a practitioner of large experience claimed to have obtained extraordinary results in

cases of intestinal indigestion and flatulence by the use of small doses of pure, unrefined petroleum, and since that time at least one prominent practitioner has informed us that, being unable to obtain pure, unrefined petroleum, he found that cholera morbus and infantile diarrhea could be successfully treated by administering a few minims of ordinary coal oil or kerosene. In the last two instances there was, of course, an action quite different from that which follows the use of petrolatum, since the various volatile constituents of the oil not only produced a local action, but were probably absorbed, and so exercised a general physiological effect.

There can be no doubt that under certain circumstances it is advantageous to administer soothing emollient substances which will act as lubricants and which will increase to some extent the bulk of the intestinal contents, and which will have no effect upon the general economy. We have administered petrolatum in capsules in a number of instances requiring this line of treatment with satisfactory results, and our attention is once more called to the matter by an article in the *Indiana Medical Journal* for June, 1905, in which Dr. Jaeger reports his use of one of these products for its mechanical and laxative effects. He has found it of little value when constipation depends upon a narrowing of a lumen of the intestine, except in so far as the softening of the feces enables them to pass the obstruction more readily. Because of the relief which they give to constipation, these soluble petroleum products may be used in the treatment of hemorrhoids, fissures or fistulas, and other conditions involving the lower bowel, and he has administered them to children and adults with equally good results, giving about a drachm three times a day to an infant as young as six months, using in such a case the liquid preparation. In a woman of thirty-eight years, suffering from impaction of feces and constipation, he gave half a tumblerful, and in other cases a tablespoonful, three times a day. The results which he has obtained make him quite enthusiastic as to the medicinal use of this substance. Although he quotes Dr. Potter as having first reported on the use of this substance as an intestinal evacuant in 1904, we have pointed out

that Dr. Randolph first suggested it twenty years ago, although without doubt Dr. Potter's trial of it was original with him.

THE RELATIVE VALUE OF PASTEURIZED AND CLEAN MILK.

Just a year ago we called attention in the editorial columns of the THERAPEUTIC GAZETTE to a valuable paper by Park, of New York, in which he and his collaborators proved by a large series of bacteriological and clinical researches that children who were fed upon clean milk which was raw thrived far better than those which received Pasteurized milk, and further than this they showed that if the child was in a fair degree of health it did better upon raw milk which contained a pretty large percentage of microorganisms than it did when fed with milk which had been Pasteurized, and in which, therefore, bacterial activity was controlled. This matter has again received attention by Pennington and McClintock, of Philadelphia, in the *American Journal of the Medical Sciences* for July, 1905. These investigators reach conclusions which are practically identical with those which we have quoted, in so far that they show that Pasteurized milk as it is obtained in the average dairy is not by any means what it professes to be in the sense of being a clean food for infants and invalids. This is the more important when we recall the facts brought forward by Edsall a few months ago, and quoted in these columns, which showed that many cases of typhoid fever when on a milk diet received such a dose of pathogenic microorganisms with each drink of milk that they were continually having added to their typhoid infection other infections. Pennington's and McClintock's researches show that Pasteurized milk frequently contains an appalling number of microorganisms even within twenty-four hours after the time it has been Pasteurized, and that commercial Pasteurizing plants, while they usually succeed in reducing the bacterial content of the milk, contaminate it again in the cooling and bottling process, so that an examination of the milk after it has been cooled and bottled sometimes reveals a greater number of microorganisms than was present in the

milk before it passed through this modern process.

The conclusion to be reached would seem to be that given fairly pure milk the child and invalid are better off if they take it as it comes, and that if Pasteurization is necessary this process should be carried out by the mother or nurse, who should prepare the bottles for the child day by day, care being taken that no opportunity for contamination in the process of cooling and bottling takes place.

THE REAL VALUE OF NORMAL SALT SOLUTIONS IN THE TREATMENT OF UREMIA.

About twelve years ago the THERAPEUTIC GAZETTE first called attention in this country to the very great value of hypodermoclysis or intravenous saline injection in the treatment of various conditions of toxemia. Within a year or two the method was so commonly employed that one might have supposed it had been recognized by the profession for many years as a valuable measure, and there can be no doubt that the enthusiastic reports which have been made concerning its use by both physicians and surgeons have resulted in the use of saline injections in many cases in which careful consideration of the condition of the patient would indicate that no good could follow their employment. Thus, given a case of a large, stout, and what may be called "juicy" person, who has a tendency to pulmonary edema, no one would rationally consider that the injection of a quart or two of saline solution could be anything but dangerous; whereas, on the other hand, in lean persons who seem half-starved of food and liquid, such an injection might be of great value not only for the purpose of diminishing toxemia, but also because it will add fluid to the body.

In a recent issue of the *Journal of the American Medical Association* Dr. Robert Willson states, as one of the conclusions to a contribution which he makes to this subject, that the transfusion of normal or other salt solution is harmful in uremia in that it causes both by its mechanical and chemical influence an increase in intravascular and intracranial tension, and supplies certain of the conditions neces-

sary to the uremic seizure. We cannot help feeling that this conclusion is far too sweeping and to a large extent erroneous, and we do not see that Dr. Willson adduces any evidence which justifies him in this somewhat dogmatic statement of his views. Those who have worked in the physiological laboratory are well aware of the fact, which is generally overlooked by active practitioners, that the vascular system is so arranged that it can contain very much larger quantities of liquid than it usually holds, without the arterial tension being raised in the slightest degree; and furthermore, it is well known that the introduction of large quantities of fluid into the system is immediately followed on the part of the excreting organs by an endeavor to get rid of this excess.

In many cases of renal disease there seems to be little difficulty on the part of the kidneys in eliminating fluids, the chief lesion being in the renal epithelium, the function of which is to cause the elimination of solids. The well-known polyuria of chronic contracted kidney with high arterial tension is an illustration of this. That the injection of a pint or a quart of normal saline solution into a vein can raise arterial tension by its mere mechanical effects, or that it can materially increase the labor of the heart, seems to us to be founded upon an erroneous conception of the physiology of the circulation. Indeed, one of the most remarkable things about the circulatory system of men and animals is its ability to adjust itself to varying quantities of liquid, and any one who will take the trouble to connect the arterial system of an animal with a mercurial manometer and then inject normal saline solution into a vein will find that not only does no rise of arterial tension ensue, but if the saline solution is of proper strength enormous quantities of fluid can be injected before any alterations in pressure or cardiac action take place.

THE NEW PHARMACOPŒIA.

In our last issue we called attention to the fact that the new Pharmacopœia had appeared, that it would take effect September 1, and furthermore that it contained a number of important changes as to the strength of tinctures, and the introduction and exclusion of certain

drugs. We desire at this time to call attention to several additional facts with more minute detail.

Among the list of articles which have been dropped from the Pharmacopœia we find few that can be considered worthy of retention. It certainly is wise to drop such obsolete remedies as the oxide and sulphide of antimony and sulphurated antimony, and such useless plasters as the plaster of iron and plaster of resin, which latter has been supplanted by a better and more modern preparation. Amongst the extracts which have been dropped, and which some physicians may think ought to have been retained, may be mentioned the extract of cinchona, the extract of conium, and the extract of uva ursi. We are quite sure that many practitioners will note with surprise that the lactate and valerianate of iron have been dropped, as has also effervescent magnesium citrate, which must not be confused with the effervescent solution of magnesium citrate. We think it a mistake to have dropped the pill of aloes and asafetida. Amongst other drugs which have been commonly employed by some practitioners and which have been excluded may be mentioned the syrup of garlic and the sweet tincture of rhubarb. Certainly no one can criticize the dropping of saccharated pepsin, tobacco, and a number of troches which are at present very rarely used.

The additions to the Pharmacopœia number 121, and although some of them are not entirely new preparations, they have been so modified as to be distinctly different from the preparations of the old Pharmacopœia. We are glad to notice the introduction of that excellent remedy for night sweats, camphoric acid, and that valuable alterative, hydriodic acid. An aromatic fluid extract of cascara sagrada has also been introduced for manifestly good reasons. Some of the other important remedies which appear for the first time are guaiacol and its carbonate, an effervescent sulphate of magnesium, tannate of pelletierine, a compound powder of acetanilid, antidiphtheric serum, salicylate of strontium, and a compound tincture of gambir in place of the well-known and well-tried compound tincture of catechu. Under the name "Liquor Antisepticus" a preparation has been introduced which is designed to take the

place of "Listerine" and similar preparations. Under the name "Liquor Cresolis Compositus" there is made official a solution of cresol in strong soap prepared with potash and linseed oil, which is designed for cleansing the hands before surgical operation. So, too, a 37 per cent by weight solution of formaldehyde has been introduced.

There are a large number of other changes almost as important as those we have mentioned which might be included in this notice, but the ones we have alluded to are sufficient to indicate the fact that notable changes have been made.

*THE INFLUENCE OF THE FUNCTIONAL
DIAGNOSTIC METHODS ON THE
MORTALITY OF NEPHRECTOMY
OF TUBERCULOUS KIDNEYS.*

Although much has been written concerning what are called modern methods of determining renal capability, many of these are so elaborate, time-consuming, and require so much technical knowledge, that their faithful trial has been confined to comparatively few clinics.

Among the modern methods of undoubted value must rank as most important catheterization of the ureters, having for its surgical end determining as to whether one or both kidneys are diseased, and whether if the disease be confined to one the other can with a fair degree of certainty be counted upon to eliminate the required amount of waste products in case the diseased organ be removed. Even against this method of modern diagnosis Israel utters a modified protest, holding that it does not enable the surgeon to assure himself of the functional activity of the presumably normal kidney.

As to cryoscopy, he alludes with some humor to the fact that each enthusiastic advocate of this elaborate method points with scorn and contempt at the errors of all the others, and that each has invented certain modifications which he alone holds to assure accuracy in work. The same to a modified extent seems to be true in regard to the phloridzin test.

As to the clinical findings of perhaps the latest fad in urology, cryoscopy, Israel states that in severe double-sided affections, Rovsing, Kapsammer, and Goebel have seven times found a normal

freezing point, and that Rovsing, Stockmann, and he himself have noted the same condition in unilateral advanced disease. Opposed to this, a freezing point abnormally high has been noted in perfectly functional kidneys.

As to Casper's phloridzin method, excepting those cases in which the elimination of sugar failed entirely, Israel noted that the urine from the diseased kidney contained less sugar than that from the normal one. Albarran, however, states that within the first hour there are cases in which there is more sugar from the diseased side. Israel observes that even with the elimination regular he had received no help from this test, since in his seventy-two cases he was enabled to determine the diseased side without the use of this test. He noted a great irregularity in the sugar elimination, and that in some cases, when it failed entirely before nephrectomy, it was present after operation. He always used freshly boiled and freshly prepared phloridzin solution, and believes that were the surgeon to trust to this reaction he would allow a number of patients to perish who could undoubtedly have been saved by operation—indeed, he practically rejects this test as having no clinical value.

By a statistical study Israel shows that the reduced mortality of nephrectomy, notable in all operative clinics, is not influenced by the modern diagnostic methods concerning functional activity. He even demonstrates that ureteral catheterization has not materially affected the mortality of his own cases, since of two series, in one of which the ureteral catheter was used, while in the other it was not, the death-rate is about the same. Quoting from the statistics of a number of operators he notes that of 104 nephrectomies based on a careful study of the functional activity of the kidneys, the mortality was 14.4 per cent, whilst of 91 nephrectomies in which there was no such functional study the mortality was 13.1 per cent.

He attributes the lower mortality to early operation. Thus the other kidney is more likely to be spared from either toxic nephritis or direct tuberculous involvement. Moreover, the myocarditis incident to the toxemia of the tuberculous kidney, particularly when there is mixed infection, is avoided. The operative dif-

ficulties are much less, hence death from shock, collapse, bleeding, sepsis, and peritonitis is rare. Finally, the mortality due to other foci of tuberculous infection is markedly reduced. He believes that the diseased side can usually be detected by ordinary clinical methods, including under this heading cystoscopy. If this fails ureteral catheterization may be needful. This was only necessary in one of his 72 cases of nephrectomy. The ureteral catheter is, however, of distinct service in determining whether or not the kidney which is to be left is functionally active, and in enabling the surgeon by means of animal inoculation from the urine of this kidney to decide as to the presence or absence of tuberculous involvement of it. This knowledge is, however, not of great value in deciding for or against nephrectomy, since Israel states that with the best kidney containing one per cent of albumen, granular casts, and pus, he has removed the more diseased organ with safety, whilst uremia has developed when the best kidney was almost if not quite healthy, according to the results of tests of urine eliminated by it. As in the case of nephrectomy for tuberculosis, nephrectomy for other malignant conditions has been attended in recent years with distinctly lessened mortality. Israel has reduced his mortality from twenty to twelve per cent.

This contribution of Israel, from an enormous clinical experience and a most elaborate study of the so-called modern methods of functional diagnosis, should prove comforting to those surgeons who are anxious to afford their patients every safety and security granted by modern knowledge, but who are so placed that the methods of investigation implied by these modern procedures are impossible.

THE PRESENT STATUS OF SPINAL ANESTHESIA.

Few surgical measures having for their end the lessening of pain during operation have been received with such prompt and unquestioning belief, tried so extensively, and dropped so absolutely, as spinal anesthesia. Indeed, the subject seems so entirely a closed one that it would seem fruitless to take it up again were it not for the authority of Bier, who, convinced of the danger of cocaine, has been experi-

menting industriously with other drugs in the hope of finding one which can be used with safety. This end he believes has been at last attained in the discovery of stovaine, which, sometimes in pure solution and sometimes in mixture with suprarenal extract, he has been employing for spinal anesthesia. Bier has used stovaine in 102 cases; 7 of these vomited, 1 suffered from slight collapse; after-symptoms were noted in 10, characterized by vomiting and headache lasting at most two days. Of the fatal cases thus far reported, two were characterized by the symptoms of cerebrospinal meningitis and exhibited subsequently the lesions of this condition. In both cases it easily could have been explained as due to causes other than the stovaine injection. One of strangulated hernia, reported by Chaput, collapsed; however, reaction finally occurred.

Bier holds that even cocaine spinal anesthesia may be made comparatively safe by the addition of adrenalin preparations, and in corroboration of this states that he has thus anesthetized 305 cases with not a single accident. There were, however, after-symptoms in 70 per cent of the cases, usually transitory. In addition to the adrenalin preparation he confines the cocaine to the under portion of the spinal cord, and the violent chills so conspicuous before this modification of the method are now observed in only one per cent of cases. The beneficial effects from the addition of adrenalin to cocaine led Bier to supplement stovaine by the addition of the preparation. This lengthens the stovaine anesthesia, which is otherwise somewhat short. He believes that the stovaine anesthesia is particularly indicated in old, feeble folk, in the treatment of wounds on the battlefield, in animal surgery and physiology. The lessened danger incident to the use of stovaine and adrenalin, the comparative rarity and innocuousness of the headache and vomiting, the muscular relaxation incident to its employment, and the efficacy of the method, commend it as one likely to take a prominent and permanent place in surgical technique. As opening up a line of investigation initiated by Crile, Bier notes that spinal anesthesia enables animals to bear shock of extensive wounds better than when such anesthesia is not employed.

It seems likely that a method so easily applied, so cheap, requiring an apparatus so simple and apparently so efficacious, would be very generally adopted, provided it can be demonstrated beyond doubt that if performed in a careful and cleanly way there are no immediate or remote lesions of the cord or its investment which may lead to disability. The complete collapse of the cocaine method was incident to its frequent complete failure, its distressing immediate sequelæ, and the large mortality. It would require more than the authority of two or three enthusiasts to induce the profession to again take up the method, even though they be assured that the accidents incident to its use may be avoided by the choice of a better material. It is likely, however, that in exceptional cases either cocaine and adrenalin, eucaine and adrenalin, or possibly stovaine and adrenalin, may be so clearly indicated that the surgeon will be glad to have at his service a knowledge of these methods.

Reports on Therapeutic Progress

TREATMENT OF INTESTINAL AMEBIASIS.

MUSGRAVE contributes to the *Journal of the American Medical Association* of April 8, 1905, an exhaustive paper on this subject. One of the factors is change of climate. This is an important factor in treatment. Alone it is not a specific therapeutic agent in any sense of the word, but it is an especially valuable aid, particularly in old, emaciated cases, and should be employed, where possible, with all patients who do not react to treatment in local environment. However, except under extreme necessity it should never be recommended nor patients allowed to pass from observation without first having a course of local treatment, and great caution should be exercised in advising a change to those who have symptoms of some of the more common complications. In nearly all cases the improvement is but temporary, unless treatment is continued, and for that reason patients should have specific directions to consult a physician on arrival at their destination, and, where practicable, letters should be given explaining the condition.

The list of drugs which have been used in dysentery and vaunted from time to time, many of them as specific, is too long even to mention, and so far as they may have any specific curative properties in the type of the disease which is under discussion, they are all useless.

It requires no very extensive observation to show that this practice of drug-giving is a much-abused one, and the actual harm done by it is not inconsiderable. There was a time in this country when such things were excusable, but with the knowledge obtained by experience and research their continuation as routine treatment deserves the severest condemnation.

There are a few drugs which, on account of their very extensive use, deserve special consideration. First, the various salts of bismuth, particularly the subnitrate and subgallate, are both useful therapeutic agents within limits, but their abuse in the treatment of amebiasis is very great. In the absence of the more rational local treatment, in combination with some of the other internal remedies, bismuth may be a very useful drug, and at other times is probably very nearly harmless, but when given at the same time quinine enemas are being used, it undoubtedly does harm.

Observations made at necropsies furnish abundance of evidence in support of this statement. As is well known, these salts are insoluble in the intestinal canal, and so their action is largely mechanical. In a bowel which has been ulcerated for some time they impregnate the edges of the ulcers and all other more or less dead tissue to such an extent that at post-mortem, even after the most thorough washing, enough is often left to make the surface almost black. The coating formed is so tenacious and fastens itself so firmly about the ulcers that quinine and other curative substances applied locally have little opportunity to reach the most essential places. There is also ample clinical evidence corroborating these statements. The writer has seen patients who have taken bismuth internally together with quinine enemas for considerable periods of time, while amebæ were constantly present in the stools, but on substituting small doses of a saline for the bismuth a permanent disappearance of amebæ occurred within a

comparatively short time. The more usual and equally tenable arguments against the indiscriminate use of this drug need not be entered into. The important consideration, which may be amply demonstrated, is that the drug is not harmless, as it is popularly believed to be, but during the time of local treatment it is capable of doing much damage in a negative way, if in no other.

Much of the abundant literature about the use of ipecac is valueless because of the lack of sufficient clearness as to the type of the disease referred to by the writers who advocate the drug. Whatever may be its value in certain other forms of dysentery, it is quite certain that when given in the doses and in the manner prescribed by its most ardent adherents, it is not only useless, but may be dangerous in amebic infections of long standing. In small doses it undoubtedly acts as a tonic to mucous surfaces, if nothing more, and as such often may be administered with advantage in intestinal flux. In emaciated patients who have had the disease for a long time, and when given in the large doses which are usually recommended, its results are sometimes disastrous. The author has seen three cases (with post-mortem) in which, in his opinion, it was the immediate cause of death. These were patients who should have remained alive for weeks, unless complications had developed, and one of them might have recovered under more rational therapy.

Magnesium sulphate and other salines have been much used in the treatment of dysentery, and where a cathartic is indicated in well-nourished patients they are very satisfactory; but their routine use for considerable periods of time, particularly in patients in the more advanced stages of the disease, is not to be recommended. They have at least two specific actions: one is to increase the alkalinity of the intestinal contents and thus favor the propagation of amebæ; the other is to cleanse the mucous membrane and thereby allow a greater efficiency of the enema. Further than when indicated as an active cathartic for this latter action, they should be used in this disease with caution.

There is some reason for the use of the mineral acids, especially hydrochloric acid and nitromuriatic acid, and

the efficiency of hydrochloric acid is increased almost always by its combination with pepsin; sometimes other digestive ferments are useful. In the vast majority of the usual cases the acid pepsin solution has at least two favorable actions: first, that due to its acidity alone, and secondly, its activity in reducing or in preventing the nausea which is often a troublesome sequence to enemas; this condition is principally due to reversed peristalsis. For this purpose neither the pepsin nor the acid alone is as satisfactory as the combination.

The so-called intestinal antiseptics are often of service in allaying fermentation, and possibly may also somewhat limit the number of bacteria. Salol or guaiacal carbonate in combination with minute doses of ipecac often exert a good influence, and the more recent preparation, acetozone, gives good results as an adjuvant in many cases. To get the best results from acetozone, it should be drunk freely in 1:5000 to 1:2000 solution, as much as from one to three or more liters being consumed in twenty-four hours. It is much more palatable when the solution is made in carbonated water, and one of the most satisfactory methods of prescribing it is to have it carbonated in siphons or ordinary soda bottles with directions to use instead of water. Its action as an intestinal antiseptic is, like other preparations, somewhat limited, but in cases where there is active fermentation of the stomach and upper bowel it often gives good results. The writer has seen some unfortunate results follow the administration of celloidin-coated capsules of this drug, probably due to rupture, in the intestine, of imperfect capsules and the consequent liberation of the chemical in concentrated form. Its use in enemas will be considered under the local treatment.

Strychnine and other powerful stimulants should be used with care during the administration of enemas on account of their stimulating action in the bowel. Strychnine, particularly, is a valuable general tonic and stimulant, but during the employment of local treatment it is best replaced by some of the more diffusible drugs; alcohol, in the form of champagne, dry sherry, or punches, is usually grateful to the patient and satisfactory in results.

Except in those cases complicated with malaria, the internal administration of quinine, so highly recommended by some, is useless, and even when malaria is present the objects sought are much better obtained by the quinine enemas, which, if properly administered, will result in cinchonization of the patient. Indeed, this is one of the disagreeable features of this treatment in a very large percentage of cases.

Calomel has had many advocates on account of its supposed antiseptic action in the intestine, and given in small, frequent doses it may exert a beneficial influence.

The writer has never seen satisfactory results from the use of sulphur. In fact, as stated before, there is no internal medication which is in the least sense specific in intestinal amebiasis, and such treatment should be directed to the improvement of the general health of the patient and to the alleviation of some of the prominent symptoms as they arise. All insoluble substances which coat the bowel are contraindicated during the time that the patient is being treated by enemas.

If properly carried out, local treatment gives satisfactory results in the largest number of cases, but to insure success, constant care, close study of individual cases, and the surmounting of many obstacles are necessary.

The manner of giving the enema determines, in no slight degree, its efficiency. Routine is particularly dangerous, each case requiring careful consideration, and variations should be made according to the indications.

The apparatus in private practice should consist of a glass irrigator of at least two liters capacity, enclosed in a metal frame, and in hospitals the large adjustable glass irrigators meet the requirements particularly well. Rubber bags are never satisfactory, for reasons obvious to those of experience in giving these enemas. The tube should be of very soft rubber, five or six feet long, and connected by a valve stop-cock with the rectal tube, which in turn should be at least 100 centimeters in length, from 10 to 15 millimeters in diameter, and made of the best red rubber. It should be of moderate firmness, not so stiff as to be dangerous to the ulcerated bowel,

nor so soft as to easily fold on itself during introduction.

Contrary to what is often recommended, the opening should be in the end of the tube, well rounded, and the immediate extremity slightly contracted and hardened. The disadvantage of having the opening in the end has been said to be that it is much more likely to become closed by fecal matter or pressure; but in the experience of the writer this has not been the case. Such a rectal tube will occasionally become clogged, but very rarely so when judgment is used in its introduction. The weakest point of this tube is its extreme end, and if any obstruction occurs during its entrance with the current flowing (as it should be under low pressure) it is quickly observed by a lack of pulsation in the soft delivery tube (which should always be under control of the operator's fingers), or by watching the fall of fluid in the irrigating tank, and such trouble may be quickly corrected by withdrawing the tube very slightly and waiting a few seconds until the fluid, which should be allowed to escape in a pulsating manner from the delivery tube by alternating compression and relaxation, has removed the obstruction by dilatation of the bowel. If the tube opens both in the end and on the side, the means of detecting an occlusion are the same as with the other. However, on account of the two openings, when the fall of fluid indicates a stoppage, the tube already may have been folded. This trouble usually begins at the eye, and several feet of loop may have been introduced before both openings are closed and the flow is stopped. In this case a correction of the trouble necessitates a further withdrawal and the turning of a knuckle of an inch or more of tube in the ulcerated bowel. Finally, with the tube opening at the end, there is obviously much less danger of mechanical injury to any deep ulcers which may be present. The tube with an opening on the side alone is, of course, not to be considered.

A very good position for the patient during the administration of an enema, and one which is usually most convenient, is the Sims position, with the hips well elevated. When practicable, it is still better to have the foot of the bed raised from 12 to 18 inches. The knee-

chest position on the same kind of a bed is sometimes particularly satisfactory, both because of the ease in passing the tube and the ability to retain the fluid. With the rectal tube and anus well lubricated with clean Castile soap or other mild soap, or with soft white vaselin, the tube, freed from air, is introduced through the sphincter. After a slight rest for the spasm of the sphincter to subside, the flow may be turned on under low pressure (controlled by the fingers on the delivery tube), and the latter is then slowly introduced to a distance of from 40 centimeters to 1 meter or more, depending on the character of the case, the location of the lesions, and the patient's tolerance for the fluid. After the tube has been introduced to the highest point which is necessary, the rate of flow may be increased, and the amount of fluid to be introduced is governed by the bowel capacity or the patient's ability to bear the pain—which in some cases is excruciating.

Patients will often be found who will take from 3 to 4 liters with no great discomfort, but in the majority about 2 liters will be all that can be borne, and in some not over a liter is practicable. Naturally this variation in quantity depends on the difference in bowel capacity, on its irritability, and on the patient's idiosyncrasy to pain. Women, as a rule, are more satisfactory patients in this respect than men.

TREATMENT OF STATUS EPILEPTICUS.

MORTON and HODSKINS in the *Boston Medical and Surgical Journal* of June 15, 1905, remind us that last year an article was written describing the treatment of status epilepticus at the Massachusetts Hospital for Epileptics. During the past year the same general line of treatment has been carried out. They have, however, been especially interested in the use of a sterile solution of sodium bromide given hypodermically and in lumbar puncture. The consideration of these two agents forms the basis of this article.

In the use of a sterile solution of bromide they feel that they have a very valuable method of treatment of status. Last year they would report on only four cases; but during the past twelve months

they have used it in many cases, and generally with good results.

They experimented for several months with the different bromide salts and with solutions of different strengths, and finally came to the conclusion that the best results were obtained with a solution of the sodium salt of the strength of 30 grains to the ounce. Stronger solutions than this are too irritant and are apt to produce abscesses. The solution even in this strength should never be injected in large quantities into the thighs or breasts. Out of several thousand injections of this solution they have had but two abscesses, and these occurred after about an ounce of the solution had been injected into the thighs. They have, however, had several cases of sore and indurated breasts. The induration rapidly disappeared under the use of a glycerin poultice, and none of the breasts suppurated.

The site selected for the injection is on the back just below the angle of the scapula. Here several ounces of the solution may be injected without fear of abscess formation.

Some authors recommend the use of a 10-per-cent solution of sodium bromide; but the authors have found that this is much too strong and very apt to produce abscesses or painful indurated areas. Other advantages that might be mentioned in favor of the weaker solution are its diuretic and stimulant effects. In these respects its action is much the same as that obtained by the subcutaneous use of normal salt solution.

The amount of bromide injected varies in different cases; frequently 60 to 100 grains will control the convulsions, but they sometimes have to inject 180 grains, or 6 ounces of the solution, before the desired result is obtained.

The earlier in a case of status the injections are commenced the better. Perhaps the most useful purpose of this solution is in aborting threatened attacks. During the past year they have given directions to the head nurses that if certain patients, who are apt to have series of convulsions or to develop status, have two convulsions in succession they shall at once receive ten hypodermics, twenty minims each, of the sterile sodium bromide solution. In this way the patient receives about 12 grains of the salt early

in the attack. If the patient continues to have convulsions, ten of the small hypodermics are given after each convulsion until the patient has received forty injections with the small syringe. These injections may be given in any part of the body, for, so far as they have been able to observe, they never give any trouble. This plan of treatment they feel sure has warded off many attacks of status which would have developed if they had followed the old plan of giving drugs by the mouth.

If the patient continues to have convulsions after having received forty of the small hypodermics, the nurse calls the physician, and from one to four ounces of the solution is injected into the tissues of the back. For these last injections a large antitoxin syringe is used.

The authors do not wish it to be understood that they claim that the use of this method will control every case of status; but they have found that in the majority of cases they can control the convulsions, especially if the injections are begun early.

The use of lumbar puncture in cases of status has been tried in seven patients with varying results. Three of their cases died, while the other four recovered. In none of the cases was it used during the first of the attack, but only after repeated injections of sodium bromide and other agents had failed to control the seizures.

Four of the cases showed a marked improvement after the withdrawal of 10 to 15 cubic centimeters of cerebrospinal fluid, while in the others there was little if any permanent effect obtained. In five of the cases the fluid was under increased pressure.

In one of the cases 20 cubic centimeters of the fluid was withdrawn, after which 10 cubic centimeters of sterile sodium bromide solution, 30 grains to the ounce, was injected into the subdural space. The patient, who had had twenty-five hard convulsions up to the time of the puncture, ceased having them, and had only one more in the next fifteen hours.

While their results have been varied, the authors feel that lumbar puncture may serve a useful purpose in the treatment of status, especially in those cases that have increased intracranial pressure.

Whether the subdural injection of a solution of bromide will prove a success remains to be seen. It certainly seemed to do a great deal of good in the case in which they tried it. They feel that the earlier the puncture is performed the better will be the results.

THE PHARMACOLOGY AND THERAPEUTICS OF ICE.

Under this somewhat novel title FIELDEN in the *British Medical Journal* of June 10, 1905, reminds us that we find ice recommended in a great variety of conditions.

Small lumps sucked prove most grateful to the patient parched with thirst, and also after operations upon the stomach. In the latter condition it is even more grateful than sips of water during the first twenty-four or forty-eight hours. It is recommended also in assisting to control hemorrhage from the mouth, throat, lungs, and stomach. For hematemesis, however, small pieces may be swallowed. In these conditions not only is the action direct, but also markedly reflex. Iced drinks are more refreshing than the same liquids without the addition of ice. In painful conditions of the stomach pieces of ice when swallowed possess a sedative action, and they may prove valuable in vomiting from various causes.

Externally we may employ this valuable adjunct to treatment in the form of compress, poultice, ice-bag, or ice-cradle. As a local anesthetic prior to the opening of abscesses, etc., or for the performance of paracentesis, it has fallen into disuse since the introduction of the ether spray and of ethyl and methyl chloride. It is well to remember that a piece of ice dipped into salt and held against the skin will prove a valuable anesthetic should ethyl chloride not be available.

To the head it may be applied in the treatment of heat-stroke, convulsions, delirium, headaches, otitis media, in certain cases of insomnia, and in meningitis (simple and tuberculous). In meningitis the ice-cap is said to be "most efficacious," lowering temperature and modifying intracranial circulation. It is recommended to be kept applied till the temperature remains subnormal for some

time. In the *British Medical Journal* of April 15, 1899, Professor Lindsay reported the recovery of a case of probable tuberculous meningitis in which the main treatment was continuous application of cold to the head. Although continuous cold was obtained by using Leiter's tubes (and not an ice-bag), the author refers to the case to illustrate the value of cold in the treatment of meningitis. The ice-cap is suggested in cerebral hemorrhage; but it is pointed out by Bartholow that it is harmful if the "face is pale, the surface cool, and the circulation depressed."

The ice-bag is useful in treatment of wounds of the eye to prevent inflammation, and is frequently employed in inflammatory disease of that organ, and, as mentioned by Shaw, seems to do good so long as it allays the pain.

Dr. Gardiner Robb says that he has found ice to the face in smallpox gives greater relief than any other application. In spinal and cerebrospinal meningitis ice may be applied along the whole length of the spine, and has been found of great service. In this case there is (as when applied to the head) both a direct and a reflex action.

Ringer recommends ice poultices to the throat in tonsillitis, scarlet fever, and diphtheria, especially if the glands are likely to suppurate.

To the chest in the cardiac region ice is of great benefit in treating pericarditis, and some writers speak of its usefulness in endocarditis. It has been found to give great relief in the palpitation of exophthalmic goitre, and in functional heart troubles.

Extensive application of ice to the chest has given decidedly beneficial results in cases of hemoptysis. Several writers have seen no bad symptoms from its use in pneumonia, and the existence of pneumonia is no contraindication to the use of ice-packs for hyperpyrexia. As it was a paper on pneumonia treated by ice applications which led the author to write this article, he briefly quotes some statistics regarding mortality in this disease. He has not found any more recent than those quoted by Mays in the *Lancet* of July 8, 1893, who collected 50 cases treated with ice applications, of which 2 were fatal—that is, a mortality of 4 per cent. Besides these, Mays quotes

from a paper by Fientdt, a Finnish medical man, who treated 106 cases (10 of which were double pneumonia), with 3 deaths, equal to 2.82 per cent. Together these constitute 156 cases with 5 deaths—that is, a mortality of 3.2 per cent. In comparison with these figures Osler puts the mortality at from 20 to 40 per cent. In the Johns Hopkins Hospital it was 29.8 per cent. Taylor estimates the mortality at 17 per cent. Certainly a striking difference in favor of ice.

The author has not found any statistics regarding the efficiency of early as compared with late applications of ice in this disease, but theoretically he imagines that a more beneficial action would be obtained if applied in the early stage, when we might expect a smaller amount of inflammatory exudation to be thrown out. On the other hand, if consolidation has already occurred, it might be found that moist warmth by flushing the blood-vessels would tend to a more rapid absorption of the effused products. The author is unable to speak from personal experience, but makes this suggestion from theoretical considerations.

The treatment of pneumonia by the ice-cradle and not by direct application to the skin has been used, and in 43 cases treated by this method the mortality was 7 per cent. For its mode of use he refers his readers to Sir William Whitla's *Directory of Treatment*. In the *Medical Annual* of 1899 it is pointed out that if ice is used in the treatment of pneumonia the patient needs careful watching; if the feet are cold hot bottles must be used; if the temperature falls below 99°, and the hands are cold or the lips bluish, the ice-bag should be removed.

The pains associated with pleuritic complications or affections are frequently greatly relieved with ice, but in some cases have been found to be aggravated.

To the abdominal wall ice has been employed in treating appendicitis and other painful inflammatory conditions of the viscera and peritoneum; also in splenic hypertrophy, hematemesis, and for the relief of vomiting from various causes. It has also been found of great service in hemorrhages from the bowel or uterus, and in the latter case pieces may be introduced into the uterus or rectum.

Locally, ice may greatly benefit con-

ditions of the testes, and is recommended to assist reduction of prolapse of the uterus and rectum. It has been found useful in some cases of lumbago, also to assist in the reduction of strangulated hernia, and for the relief of hemorrhoids which are swollen, painful, and bleed.

To the limbs the ice-bag may be applied when neuralgia of various nerves requires immediate relief by active treatment, but it is for inflammation in joints and bursæ that we find the ice-bag more frequently pressed into service. After excision of joints and other operations upon bone the application of an ice-bag over the dressings will greatly diminish the oozing which is sure to occur, as well as lessen the pain which might otherwise follow. As an alternative to moist warmth ice may be employed in the expectant treatment of osteitis, myositis, and inflammation of other tissues prior to the formation of pus.

An ice-pack to the trunk or trunk and limbs will be found of the utmost value, as already mentioned, in treating hyperpyrexia occurring during typhoid, acute rheumatism, scarlatina, and other febrile conditions. Even if pneumonia occurs as a complication the ice-pack is not contraindicated. The rectal temperature must be watched, and when it falls to 100° the pack must be removed, when a still further decrease will be noticed. If kept on too long collapse is liable to occur.

ILEOCOLITIS TREATED WITH ADRENALIN.

In the *Richmond Journal of Practice* for June, 1905, MASON reports the case of a child of fifteen months suffering with the usual symptoms of ileocolitis, vomiting and pain; temperature 101° to 103° F.; frequent characteristic green stools, becoming streaked with blood and accompanied with tenesmus.

The question of diet was in this case much simplified by the fact that the mother's milk was immediately prohibited. Medicinal treatment was begun with a calomel purge, followed later by bismuth subnitrate. Opiates sufficient to control pain were used; irrigation of colon, followed by high injections of tannic acid solution. Each of these treatments seemed to give temporary relief, only to be followed by a return of the symptoms, until

at the end of a week the patient was becoming much weakened and emaciated, the stools more frequent and painful—at this time as often as every twenty minutes—and composed of little else than blood.

The parents were made acquainted with the serious condition of the child, and at the writer's request Dr. Henry Frost was called in consultation. He advised injecting a solution of adrenalin chloride. Five drops of the 1:1000 solution (P., D. & Co.) was added to 2 drachms of water and injected about five inches up the bowel by means of a soft-rubber catheter attached to an ordinary urethral syringe. The injection was given immediately following an action, and it was retained. At five o'clock the following morning, three hours from the time the injection was given, there had been no return of the stools. During this time the writer watched the patient closely for the systemic effects of the drug, but could discover none, except a slight strengthening and slowing of the pulse. The injection was then repeated, with the result that there were no further actions till nine o'clock—seven hours from the time of the first injection—when there was a small stool, containing less blood than formerly. The injection was again repeated, and there were no more stools for six hours. The injections were now only used p. r. n., each stool containing less blood, till at the end of forty-eight hours the adrenalin was discontinued altogether. The patient went on to make a good recovery under the usual treatment of stimulants, bismuth, careful dieting, etc.

When such gratifying results are obtained apparently from the administration of any drug, the question often arises in the mind of the physician, Was this the action of the drug, or might nature not have asserted herself just at this time and caused a change for the better, unaided by the drug?

In this particular case the writer does not believe that nature is wholly entitled to the credit of cure, for the reason that several weeks later, when the child had apparently entirely recovered, she accidentally ate a part of an apple, causing an acute attack of diarrhea, immediately followed by a return of the dysenteric symptoms. This time the author used adrenalin solution as soon as blood appeared in the stools. The symptoms were

so promptly controlled that the injection was not repeated more than once.

He reports this case, which occurred last August, because he had not heard this treatment suggested until it was advised by Dr. Frost, and he hopes some brother physician, when confronted with an intractable case of ileocolitis, will give it a trial and report results; for while some knowledge of the therapeutic action of a drug can be obtained by laboratory experiments on animals, it is only by such clinical experience and report of the same that the best proof of the therapeutic worth or worthlessness of an agent can be determined.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

Under this somewhat encyclopedic title NORRIS contributes to the *Journal of the American Medical Association* of June 17, 1905, a paper in which he gives advice in regard to this subject. He says that the treatment of the gastrointestinal tract is the most legitimate form of phthisiotherapy. The importance of intestinal fermentation, flatulence, etc., on cough will be considered later. Fermentation and flatulence should be treated with hydrochloric acid and strychnine, before meals, or with a mixture of creosote and sodium bicarbonate an hour or two after meals. Due attention, of course, must be given to the diet, the more indigestible forms of carbohydrates being excluded.

Diarrhea due to decomposition of food products or to intestinal congestion or ulceration yields most promptly to a carefully regulated diet and the administration of castor oil, to which, if the case be a severe one, a few drops of the deodorized tincture of opium may be added. Excellent results are often achieved by the administration of magnesium sulphate in doses of ten or fifteen grains at half-hour intervals. If the intestines are kept free from the irritating secretions by two or three good bowel movements daily, astonishing improvement often occurs. The addition of lime water or barley water to the milk, which should be warmed before taking, is also useful. Bismuth, to accomplish any results, must be given in large doses, to which salol or guaiacol carbonate may be added.

Constipation calls for an increased amount of fruit and green vegetables to the diet. A raw apple eaten before retiring is often quite miraculous in its results. The amount of fluid in the dietary should be increased, and, if possible, also the amount of fat ingested. A glass of water taken on rising, to which a little sodium phosphate or magnesium sulphate may be added, and massage of the abdomen, practiced by the patient himself before getting out of bed, are all useful measures. If vegetable laxatives, such as aloin, cascara, belladonna, podophyllin, etc., are resorted to, they should be used with caution. If intestinal ulceration, which is often present when unsuspected, exists, these remedies almost invariably do harm and set the patient back many weeks on his road to recovery, by irritating ulcerations and increasing the amount of secretion. The administration of laxatives is frequently necessary in pulmonary tuberculosis, and constipation should be most carefully guarded against.

Few drugs are needed, many forms of medication are distinctly injurious in their action; of these may be mentioned mercury, potassium iodide, and antimony. A large number of drugs from which *a priori* we might expect benefit are disappointing; among these are digitalis, strophanthus, caffeine, sparteine, etc. Among those which will perhaps be found the most useful the following may be mentioned: strychnine, nitroglycerin, camphor, iodine, iron, arsenic, calomel, magnesium sulphate, sodium phosphate, creosote.

The primary factor to be borne in mind is that no drug should ever be prescribed without a definite indication or object in view. Nothing can be more ridiculous and harmful than this sort of ratiocination: "This man has pulmonary tuberculosis, therefore I will give him cod-liver oil." Or, "He looks pale, therefore we will administer iron." In the first instance we are simply supplying a fat which is no more nutritious, but much more indigestible, than butter, and in the latter we upset the digestion of a patient who may have a normal number of red blood-corpuscles and normal amount of hemoglobin for no purpose. Recovery in tuberculosis of the lungs depends largely on the ability of the patient's stomach to digest more than a normal amount of food

and his heart to do an abnormal amount of work, therefore no drug should ever be given which entails the risk of disarranging the digestion or depressing his circulation, without the most urgent necessity. No known drug has any directly curative influence on the tuberculous process *per se*.

From what has been said it is perfectly obvious that the medicinal treatment of this disease should consist largely in remedies calculated to further the digestive processes. With this object in view it is primarily necessary to keep the action of the liver, gastrointestinal tract, and kidneys in a satisfactory state of functionation. As an aid to digestion, the writer has seen marked benefit follow the administration, either before or after meals, of HCl, strychnine, and some bitter tonic, despite the statements of recent gastrologists that the small amount of HCl thus administered cannot appreciably aid in digestion, directly. Good results have also followed the use of sodium bicarbonate and nitrohydrochloric acid.

THE ESSENTIALS OF TREATMENT OF ACUTE INFLAMMATION OF THE MIDDLE EAR.

BULSON writes on this subject in the *Journal of the American Medical Association* of June 17, 1905. In the author's judgment acute inflammation of the middle ear is essentially a surgical disease, and its successful treatment depends on the early establishment of drainage, but in a summary of the recommendations for the treatment of the affection from its incipency he would say:

1. The patient should be kept quiet, preferably in bed, and the more active the symptoms the more necessity for the enforcement of this measure.

2. Secure a prompt and free movement of the bowels by means of calomel and salines.

3. Secure depletion of the vessels of the membrana tympani and the tympanic cavity by leeches applied to the region immediately in front of the tragus, and the osmotic effect of carbolic acid (10-percent) and glycerin tampons applied directly against the drum membrane.

4. Cleanse the nasal and pharyngeal mucous membrane with a saline antiseptic spray or douche. Remove any existing hypertrophied lymphoid tissue.

5. Advise cautious blowing of the nose to limit introduction of infection to the tympanic cavity.

6. Apply dry heat to aid in control of pain.

7. Incision of the drum membrane under strict aseptic precautions on the appearance of pronounced redness of any portion of that organ when accompanied by pain, impairment of hearing, and other evidences of acute inflammation.

8. Following perforation of the drum membrane the use of aseptic dry gauze packing for the purpose of excluding infection from without and also to withdraw the discharge from the tympanic cavity by capillary attraction.

9. Syringing under aseptic precautions, only when the discharge is purulent and profuse, to be followed by as thorough drying as possible with sterile absorbent cotton.

10. Judicious inflation by Politzer's method only after the acute symptoms have subsided or after the drum membrane has been opened, to facilitate removal of discharge from the tympanic cavity and to prevent adhesive changes in the sound-conducting apparatus.

11. Appropriate treatment of any associated systemic disease.

TREATMENT OF INFECTED WOUNDS WITH A PHENOL PRODUCT.

LONGENECKER writes on this subject in the *Pennsylvania Medical Journal* for May, 1905. He reminds us that there are several chemical substances which if rubbed together will produce a fluid. Some of these are chloral and camphor, and choral and the coal-tar antipyretics, camphor and phenol. The latter is probably the most important and useful, and is the only one which will be considered in this paper.

This product, known as camphorated phenol, is not new. As far back as 1883, in the U. S. Dispensary, we are told "Bufalini recommends the combination of carbolic acid with camphor under the name of camphorated phenol, asserting that the camphor moderates the caustic and disorganizing character of the phenol without destroying its useful effects."

This mixture is composed of camphor two parts and carbolic acid one part. On being rubbed together, or simply left to

stand and shaken occasionally, a clear solution is formed. The formula in the U. S. Dispensatory directs that this solution be washed in water, but for what reason is not stated. The author thinks this washing can be omitted, as at the present day both camphor and phenol may be obtained in sufficient purity for our use without further purification.

The solution has a specific gravity of 1006, is non-corrosive and non-toxic to wounds, and can be applied in so many conditions that it is hardly possible to define its usefulness. The results following its use are most excellent in all cases. No untoward effect has ever, in the author's experience, resulted from its application. After very careful and repeated inquiry he failed to elicit from the patient anything that would denote sufficient absorption to produce even smoky urine. Nor has any other symptom of carbolic absorption ever been noted by him when applied over extensive surfaces and for several days consecutively.

Gangrene of fingers has frequently been reported as following the use of weak solutions of carbolic acid and water. But this has never occurred even with this full-strength solution, which contains thirty-three per cent carbolic acid; the reason being that it is so modified in its action by the camphor as to prevent any corrosive action or the cutting off of circulation sufficient to produce a slough.

The application of camphorated phenol is almost without limit. It can be applied alike to sound skin, wounds, and mucous surfaces, such as mouth, nose, vagina, or to abscess cavities, in its full strength and painlessly. Its only limitations seem to be the eye, ear, and urethra; to these parts he finds the burning produced by it is rather unpleasant but of short duration, and it may be advisable to use less than full strength, although he has frequently applied it over a limited area even in these parts by the use of cotton on an applicator, in its full strength, without inconvenience to the patient.

Camphorated phenol is soluble in alcohol and ether, but insoluble in water. It is miscible with oils and with some other substances, such as tincture of iodine, ichthyol, etc., which serve to modify its action and widen its field of usefulness. Ease of preparation and cheapness are also greatly in its favor.

Even though camphorated phenol is an old product, its virtues do not seem to be appreciated. It was brought to the author's attention about twelve years ago. At the surgical dispensaries of the Presbyterian Hospital, with an attendance of about fourteen thousand visits per year, he has watched its use for about nine years, and at the gynecological dispensary for about three years. During this time it has been applied thousands of times and in many varieties of conditions, and its results closely studied.

BOILS.

In the *Pennsylvania Medical Journal* for May, 1905, GUTHRIE gives his views as follows for the treatment of furunculosis. He says that the treatment of this condition consists of preventive, abortive, and curative treatment.

In the way of preventive treatment measures should be used to restore the normal condition of the patient; if tired and overworked, rest and recreation with plenty of fresh air and good food; in fact, anything to restore the normal vitality.

Care of the skin is important—proper bathing is indicated. Slight injuries of the skin should be avoided, and when they do occur they should be treated by covering them so as to prevent the ingress of the pyogenic cocci.

In the way of medicine some authorities have lauded the sulphide of calcium. The author has used it quite extensively without any apparent results for good. In his hands quinine in moderate doses has done good service. Fordyce Barker said, "I know of no remedy so effectual as a preventive of suppuration as quinine." It has been the writer's practice to give three grains of quinine three times a day for a week, and with excellent results.

Abortive Treatment.—Can anything be done locally to abort these troubles? The author's preceptor, Dr. Edward R. Mayer, believed that a saturated solution of permanganate of potassium applied freely and early was very effective. Others believe that a minute drop of pure carbolic acid insinuated into the hair follicle will produce the same results.

The injection of carbolic acid in various degrees of strength has had its advocates, as has also the crucial incision and the ap-

plication of carbolic acid, or what Agnew called a "twofold barbarism."

Practically the author is a disbeliever in the abortive treatment, or rather, he believes that more harm than good is done by this form of treatment. An intelligent, practical layman, a kinsman of his, has often told him that pricking the primary pustule and squeezing the swelling was invariably followed by aggravated symptoms.

In this, as in many things, it is remarkable how laymen have forecast and recognized the sound principles of medical science. The old grannies, when they scorched the linen for dressing the umbilical cord, sterilized the dressing, although they did not know it; the old nurses when they scalded the milk for sick babies applied the most approved principles of sterilization, although they were ignorant of the reason; the mother who tied her boy's cut finger "up in the blood" kept the wound bathed in the sterile blood and secured primary healing without a change in dressing. They were all applying the principles of sterilization, though they were ignorant of the reason why.

So in the case under consideration: pricking the slight pustule and squeezing the cone-like boil forced the infective agent around which nature had thrown a wall of protection into the surrounding tissues and increased the area of inflammation.

Lilienthal says that in shaving the hair in the neighborhood of a boil the razor should be drawn from the base to the apex, so as not to drive the infective agents deeper into the tissues.

Warren says that in syringing out the crater-like cavity attending the earlier stage of the boil, "care should be taken not to overdistend the pus cavity, or the septic process may be made to spread and all the symptoms be aggravated." For the same reason the author considers it unwise in the early stages to incise and cauterize.

A year ago, during an attack of boils which the writer had, affecting his right hand, due to infection acquired a short time before, an enthusiastic medical brother, who took a very pessimistic view of the trouble, advised and urged incision, and cauterization with pure carbolic acid. He consented, and submitted to the "twofold barbarism" in the case of one of the wellings. The result was that the treat-

ment was immediately followed by marked aggravation of all the symptoms. The hand became greatly swollen, the lymphatics of the forearm tender, and the supratrochlear gland on that side much swollen, while the other boils on the hand that was treated by a "masterly course of inactivity" gradually aborted and became innocuous.

As to the curative treatment, the old-fashioned flaxseed and bread-and-milk poultice does harm rather than good, by softening and preparing the soil for the reception of the infection.

The so-called antiseptic poultice, as gauze saturated with a boric acid solution, or with Thiersch's solution, is an admirable dressing. As soon as the crater-like opening at the summit of the cone will admit a probe, or small grooved director, and there is evidence of pus beneath, a small straight bistoury may be inserted and the opening enlarged so as to permit a free escape of any retained pus. This will give great relief to the patient. Then day by day the softened slough, or core, may be gently pressed out by using cotton sponges saturated in boric acid solution or a weak bichloride solution; and when the cavity is cleansed, healing will take place very promptly. No free incisions, no curetting, or injections into the cavity will render any more satisfactory service, but aggravate and prolong rather than shorten and relieve the trouble.

THE TREATMENT OF TETANUS.

Editorially, the *Journal of the American Medical Association* of June 10, 1905, recalls to our minds the sad inefficiency of antitoxin when used to cure tetanus. This has led to many researches, both experimental and clinical, to secure some better method of administering it, for there is no doubt that tetanus antitoxin will neutralize tetanus toxin with which it comes in contact; therefore, the problem is to bring about this contact rapidly and abundantly, and particularly where it is needed—that is, within the motor nerve cells of the spinal cord. As an outcome of this work certain results have been obtained that have led to a method of administration of tetanus antitoxin which seems, so far, to have had a better success than any other yet used. This may be called the

combined intraneural and intraspinal antitoxic treatment. A year ago, in a special article, the *Journal* discussed the physiological considerations on which it is based, and the encouraging results obtained up to that time. Since then a number of new cases have been reported with very favorable results, which indicate that through this method we can hope for, at least, some lowering of the mortality figures below the almost hope-destroying point at which they now stand.

In practice the method is as follows: The patient is anesthetized, preferably with chloroform, and an incision is made over the site of the large nerve trunks leading to the injured part, if the wound is in an extremity, as is nearly always the case. The nerves being isolated and exposed for a distance of from one to two inches, as much tetanus antitoxin as possible is injected into the substance of the nerve trunk through a fine hypodermic needle—generally from 2 to 4 cubic centimeters, in the case of a large trunk; a slight injury of the nerve fibers is rather to be desired than otherwise, as the object of the procedure is to get the antitoxin into the motor nerve fibers, along which it seems to be transported into the cord. A lumbar puncture should then be made, and after withdrawal of as much cerebrospinal fluid as is safe, generally as much as will readily flow out of the needle, for it seems to contain much toxin, from 3 to 10 cubic centimeters of antitoxin is injected into the spinal canal, depending on the age of the patient. In addition to this, it is well to inject an additional 10 to 20 cubic centimeters of antitoxin subcutaneously, preferably near the wound or in territory supplied by nerves from the same section of the cord as the injured part. There need be no fear of giving too much antitoxin—patients have received hundreds of cubic centimeters without showing untoward effects beyond an occasional dermatitis. Schley has suggested that to facilitate reinjection the wounds made in isolating the nerves be left packed lightly with gauze strips saturated with antitoxin, which is kept from escaping into the dressing by means of rubber protective. While the patient is still under the anesthetic the wound is, of course, to be thoroughly and vigorously cleaned. Tetanus-infected wounds are to be kept open to heal from the bottom, and so dressed that

air may reach them after diffusing through the dressings. The injection of serum into the spinal canal, which should always be preceded by withdrawal of a few cubic centimeters of fluid, may be repeated as often as every six to twelve hours during the first forty-eight hours, and the intraneural injections should be repeated at least once again after twelve or more hours, as also should the subcutaneous injections. Administration of chloroform for the purpose of making these frequent injections has a decidedly beneficial effect, not only affording the patient a rest from the spasms, but also lessening their violence and frequency for some time afterward.

Tetanus antitoxin, at the best, does not produce effects rapidly, and the symptomatic treatment of each case is not altered in the least by its use. The spasms must be kept down, if possible, to prevent death from exhaustion or asphyxia. In addition to the usual use of chloral and morphine as sedatives, more vigorous measures may well be taken. When the violence of the spasm threatens asphyxia, chloroform is always indicated. Intraspinal injection of eucaine and morphine, as advocated by Murphy, is a highly rational procedure, and may be performed at the same time as the antitoxin injection without complicating the treatment. Curare, first suggested by Claude Bernard, has been used successfully both experimentally and practically in von Leyden's clinic, and is the most powerful of all agents in controlling the spasms, although without influence on the course of the disease. S. A. Mathews has suggested the intravenous injection of a calcium containing salt solution, which also has the effect of reducing the muscular spasm as well as improving elimination. This is especially to be urged as a method always available to practitioners who are so situated as to be unable to secure antitoxin promptly.

Tetanus is fortunately so uncommon a disease that no one person is able to acquire an extended experience with its course and treatment; hence we must rely on what can be learned by compiling and studying the reports of as many isolated cases as possible. By this means has been reached the conclusion that the treatment of tetanus by subcutaneous injection of antitoxin adds a slight improvement to

the usual sedative measures, but by no means enough to warrant us in resting content with its results.

Of the various other methods suggested, the combined intraneural and intraspinal injections have, so far, furnished the best results, and this method is based on the soundest experimental and clinical basis, for which reasons we have ventured to urge its application in all cases of tetanus. It is extremely important that case records of tetanus patients, whether recovering or not, be reported, in order to add to our scanty information on the subject, and especially so when a new method of treatment is tried. Only by collecting many such scattered reports can a basis for future improvement be obtained.

HYPODERMOCLYSIS.

In the *New York Medical Journal* of June 10, 1905, McINTOSH gives the following indications for this procedure:

Personally the writer can speak of hypodermoclysis only in hemorrhage, shock, uremia, puerperal eclampsia, typhoid fever, pneumonia, and anemia; in these cases it often saves life and always does good.

In poisoning from illuminating gas, ether, and opium, this procedure is highly recommended, as it dilutes the poison and favors elimination. In diseases attended with great loss of body fluids, such as cholera, cholera infantum, enterocolitis, the remedy is of great service. It is also one of our best remedies in septicemia. On account of the leucocytes it produces, saline solution should be used in rheumatism and infectious diseases generally. The remedy is recommended in diabetic coma, restoring consciousness and prolonging life.

Hypodermoclysis is not a remedy for everything. To the surgeon the author would say use it always after hemorrhage, in shock, and often to prevent shock—he will find it his best friend; to the obstetrician, in eclampsia, and after postpartum hemorrhage, provided the hemorrhage is well under control. To the physician he would say use it in anemia, enteric fever, and pneumonia; in all of these it will help him, and in the last two mentioned will often save a precious life when all else has failed.

Since writing the above the author asserts he has had excellent results in several cases of rheumatism, both muscular and articular, by use of hypodermoclysis; in one case the pains disappeared as if by magic.

THE PRESENT STATUS OF ROENTGEN-RAY THERAPY IN DERMATOLOGY.

In *American Medicine* of June 17, 1905, COMROE sums up our knowledge of the fields in which this agent can do good. He believes the Roentgen rays have also been uniformly successful in the treatment of the most obstinate cases of pruritus, particularly in the region of the anus. The employment of a soft tube is advised, and the exposures should be short and administered about twice a week. It may be well to state at this juncture that the genital organs should be well protected, as several cases of aspermia have been reported, not only in those receiving treatment, but likewise in radiologists and others who have had access to the apparatus.

According to Pfahler, dermatitis herpetiformis, keratosis palmaris, mycosis fungoides, and leprosy have responded favorably to the influence of the Roentgen rays, one patient with dermatitis herpetiformis (chiefly involving the face) having been greatly benefited by Schamberg.

Soon after the Roentgen ray was introduced as a diagnostic and therapeutic agent, its life was seriously threatened by both public and professional censorship, owing to the frequent occurrence of large burns and other less serious sequels—e.g., loss of hair, nails, etc., and trophic changes in the skin. In fact, one case of death was reported by Rubel, but since no autopsy was performed and the patient succumbed to an aggravation of the symptoms of the malady for which he was receiving treatment, the Roentgen rays may have had little to do with it. Since then three other doubtful cases have been reported. To-day, however, with the fortification of a heavily paid for experience and the advanced improvement in technique, these sequels are comparatively rare and less serious.

The old theory that these burns were produced by small particles of platinum that were thrown off and embedded in the skin was almost immediately disproved by Gilchrist, who made numerous sections

of the skin in severe burns and failed to find the foreign irritants. That they are not caused by the electric charge *per se* is seen by the practical fact that the high vacuum (hard) tube gives off more electricity than the low vacuum (soft) tube, but nevertheless is less prone to cause a severe dermatitis. Weisner and Keimbock think they are trophoneurotic in origin, produced by penetration of the rays through the skin, and causing chemic irritation in the molecules surrounding or in the nerve terminals. Pathologically, Roentgen-ray burns are similar to sunburns.

For the prevention of this complication, unfortunately, no specific rule can be laid down—the personal idiosyncrasies in each individual case proving the unknown facts. Thus, in a case reported by Pfahler and Bodman, the hair was removed by an exposure of two and a half minutes, whereas Grubbe treated a patient daily for two years, in which the tube was very close to the skin, and only a slight erythema was produced. As a rule, however, the fair skins are more sensitive; the mucous membrane of the lip is especially sensitive, and the mucous membrane of the mouth and conjunctiva least so, probably due to the continued bathing in moisture (Schamberg). As premonitory symptoms, itching and burning must not be depended upon too much.

The treatment of these burns as a rule is most obstinate, and often extends over a period of two or three months. Of course, the first measure is the discontinuation of the exposures, after which Satterlee has found the application of carbolic acid in rose water, 1 to 8, very satisfactory. Engman, however, advised the employment of vaselin for twenty-four to forty-eight hours, followed by the use of this combination:

Boric acid, 45 Gm. (12 drachms);
Zinc oxide,
Starch,
Bismuth subnitrate, of each 32 Gm.
(1 ounce);
Olive oil,
Lime water,
Lanolin, of each 96 Gm. (3 ounces);
Rose water, 45 Cc. (12 drachms).

Stelwagon employs a 25-per-cent ointment of orthoform, which consistently gives good results. As a final result skin-grafting may be employed, but as a rule proves unsatisfactory.

Although Russell H. Boggs states that "injury to the operator from the rays during the past two years has been due to thoughtlessness or lack of familiarity with what is going on in the Roentgen-ray world," nevertheless cases are not infrequently reported; in fact, the author was himself severely burned less than two years ago. According to Leonard, varying degrees of erythema, keratitis, and even carcinoma cutis may result and become first manifest many months after exposure. As has been elsewhere stated, several cases of aspermia have been traced to the action of these rays, both in the patient and operator. Two fatal cases of carcinoma cutis, with metastases, have recently been reported. Not only may these detrimental effects result from the rays, but also by frequent and prolonged proximity to the induction coil. To combat successfully or to eliminate these causative factors many ingenious devices have been advanced, namely, hoods for the tube and isolation of the coil. These methods are just as effectual and far less cumbersome than the protective "coats of armor," so to speak, to be worn by patient and operator.

Comroe concludes that:

1. Radiotherapy must not be considered a panacea. Although it has a large field of usefulness, it also has its limitations and dangers.

2. Most consistently good results are obtained in epithelioma, rodent ulcer, and acne.

3. Great benefit may be looked for in eczema, chiefly the vesicular variety affecting the hands, sycosis, tinea tonsurans, verruca, lichen planus, nævi and portwine marks, localized pruritus, favus, etc.

4. Deep-seated epitheliomas, with exposure of bone, cartilage, etc., appear to do well for a while, but usually get worse eventually. The judicious combination of radiotherapy and operation is highly recommended in these cases.

5. The Roentgen rays are beneficial when pain is particularly to be avoided, as in old, feeble people.

6. Radiotherapy produces the best cosmetic results.

7. Recurrences after radiotherapy are less frequent than after other methods, and are more amenable to reapplication of the rays.

8. The high vacuum tube is preferable

in epithelioma, rodent ulcer, and lupus, the medium or soft tube being employed in other cases.

9. Radiotherapeutic treatment should be instituted as soon as possible, the result being usually in direct proportion to this factor.

10. Epithelioma of the skin usually reacts better than that involving the mucous membranes.

11. Tampering with caustics and other irrational forms of treatment are to be condemned as measures preceding radiotherapy, since they undoubtedly unfavorably alter the prognosis in such cases.

12. No rule can be laid down for the prevention of burns, etc.; hence the dosage must be carefully regulated in each individual case.

13. No protective ointments, powders, etc., must remain on the part treated, since they may prohibit or lessen the effect of the rays by interfering with their passage.

ON BREATHLESSNESS, ESPECIALLY IN RELATION TO CARDIAC DISEASE.

To the *London Practitioner* for June, 1905, BRUNTON contributes a paper on this subject. He states that amongst drugs the most important in its action upon the heart is digitalis, and perhaps there is no better way of giving it than the old-fashioned pill, which contains 1 grain digitalis, 1 grain squill, and 1 grain blue pill. This is the most common formula, but occasionally an additional grain of blue pill is added to it, and sometimes, as in St. Bartholomew's Hospital, some extract of hyoscyamus, where we use 2 grains in each pill. Why the blue pill should help the action of the digitalis one cannot tell, but there can be no doubt whatever that it does so. Notwithstanding all the work that has been done upon the chemistry and pharmacology of digitalis, our knowledge of it is still imperfect, and the author surmises that the different methods in which it is used in Edinburgh and London depend upon a different composition of the plants grown in Scotland and England. In London he believes the preparation most frequently employed is the tincture, while in Edinburgh the infusion almost invariably used to be given. When the author was house physician in Edinburgh, the infusion was almost invariably given in half-ounce doses, but

when he has prescribed the infusion for patients in London he has found this dose rather large, and it seemed to him more apt to produce sickness than the Scotch preparation, so that he has more commonly given it in doses of one to two drachms rather than in doses of half an ounce. He confesses that he has been more inclined to use the tincture or infusion than digitaline, but nevertheless he has found Nativelle's digitaline, in half-milligramme to milligramme doses, acts well. In some patients where digitalis does not succeed, strophanthus proves efficient, and vice versa, but the writer does not think one can tell beforehand which these cases are, and it is only by trial that one can find it out. One of the most valuable remedies for strengthening the heart is strychnine. Its action appears to be that of stimulating the cardiac ganglia, and in cases where one is doubtful about giving digitalis or strophanthus, either because of their power of slowing the heart or of unduly raising the tension, one has recourse to strychnine. At the same time it proves a most useful adjunct both to digitalis and strophanthus, and may be given either by the mouth or subcutaneously.

Where the heart is failing, digitaline and strychnine may be employed subcutaneously, together, and one-half or even one milligramme of the former with a twentieth or even a tenth of a grain of the latter. The author here recalls being asked by a practitioner, whom he met in consultation, how often he should use it in the case of an old lady with pneumonia whose heart was failing, and he said he should give the strychnine in her case until he saw the fingers jump. The practitioner followed his advice, with the result that the old lady got through. Another useful remedy in dyspnea, both of cardiac and pulmonary origin, is oxygen. The author states that while he may be wrong in doing so, he takes some credit to himself for bringing both oxygen and strychnine into general use in England. In the *Medical Record* of 1874, p. 293, he abstracted a paper on the action of strychnine on the respiratory centers, and in a conjoint paper with Professor Cash he showed its powerful action as a cardiac stimulant. In his lectures on therapeutics for thirty years he has insisted upon these facts. Its use had fallen into abeyance

except in cases of poisoning by coal gas, and it was but little used until a joint paper by Dr. Prickett and himself on its use in pneumonia again brought it into prominence. In year-books of medicine before this he has found very few notes about its use, but immediately after this paper letters regarding it were frequent, and its use became general. Citrate of caffeine in doses of 2 to 5 grains, or diuretin in doses of 2 to 10 grains, every six hours, are sometimes useful adjuncts to digitalis or strophanthus. Sometimes these drugs cause irritation of the stomach or bowels, and give rise to sickness or diarrhea, which may require their discontinuance, and as a rule he thinks they do more good if used only for a week or even less, and an interval of some days is allowed before they are given again. One of the most important means of relieving dyspnea is certainly free purgation, and one of the best means of securing it is by the use of compound jalap powder in doses of 20 to 60 grains. This combined with the digitalis and blue pill, already mentioned, increases the elimination of water both by the bowel and by the kidney, and lessens the congestion of the liver, which is the natural consequence of venous stagnation. It also relieves the tendency to an edematous condition of the lung and eases the respiration.

CHRONIC CONSTIPATION AND ITS CONSEQUENCES IN INFANCY AND CHILDHOOD.

HUTCHISON in the *Clinical Journal* of May 31, 1905, in speaking of constipation in infancy says that it should not be treated by means of drastic aperients, but by means of those aperients which exert a more or less tonic action on the bowels. Our object should be in all cases to educate the bowel to act spontaneously. We do not want to have to go on giving aperients always, but to bring about a condition of affairs in which the bowels act spontaneously. Such aperients as aloes and cascara sagrada are the best, and in many cases one has to fall back upon one or other of these in order to produce a suitable action. But before proceeding to speak of the methods of prescribing aloes and cascara, the author mentions one or two other plans which are sometimes sufficient in the milder cases. In bottle-fed

babies, for instance, it will be found that adding phosphate of soda to the bottle will often enough produce an action. Five to ten grains should be added to each feed. Or one may sometimes give manna, which has a laxative effect; it should be dissolved in hot water and added to the food. Or sometimes a grain or so of sulphur given with the baby's milk produces the desired effect. In breast-fed babies fluid magnesia is often found to be a useful aperient.

On the other hand, there are certain methods of treatment which ought to be avoided. One of these is any attempt to treat constipation in the child by administering aperients to the mother. One can only call that a very roundabout and unsatisfactory method of trying to reach the child's complaint. Many people believe, however, that that method of treatment is efficacious, and sometimes sulphate of magnesia is administered to the mother with that object. If we will think it over we will see that the only chance of this acting is that some of the sulphate of magnesia may be excreted in the milk, and so reach the child's intestine. If the mother suffers from constipation, there is no constipating principle excreted in her milk that we know of, and the only conceivable way in which laxatives could act upon the child if given to the mother would be by reaching the child through the milk. But that is so uncertain that it is not a method which could commend itself to any rational therapist. Again, the author does not think the tendency to administer aperients by the lower bowel is much to be commended; that is a method largely in vogue in the nursery, in the form of soap suppositories or small injections. In some cases that treatment is good enough—that is to say, in those cases where the constipation is due entirely to stagnation in the large bowel and the defective action of the lower part of the large intestine. But if, as the author thinks there is reason to suppose, many of those cases are due to a cause operating much higher up in the intestine, such a method of treatment is not to be commended, because it acts upon one section of the bowel only. The habitual use of laxative enemata or suppositories is also apt to result in a certain amount of irritation of the rectum, setting up a chronic catarrh or proctitis. For these reasons

this method of treatment is not to be commended.

As an accessory in bringing about a proper and regular action of the bowels, massage is always a plan to be adopted. It undoubtedly helps where the constipation depends upon a defective muscular tone in the large bowel, and it can easily be carried out by the mother by rubbing the abdomen along the line of the colon systematically for five or ten minutes two or three times a day, at the same time kneading the bowel. If necessary, a small amount of unguent or oil may be used to prevent breaking of the skin; but it is futile to expect that by rubbing anything on the abdomen it will find its way in and produce laxity of the bowel in that way. One has known an aloetic preparation used with the idea of its being absorbed; but that, like the method of trying to bring about an action of the bowels of the baby by giving the mother a laxative, is very unsatisfactory. The oily substance which is rubbed on the abdomen acts mechanically if it acts at all, and is only used to prevent irritation of the skin which might otherwise follow the rubbing.

The author has said that one has to fall back in all obstinate cases upon one or other of the tonic aperients, such as aloes or cascara. Aloes is best given to little children in the form of the tincture. For a child aged six months 3 to 5 minims will be sufficient. With that we may combine some other aperient drugs, because in children, as is probable also in adults, aperients often act best when given in combination. One form of aperient acts on the muscles, another on the nerves, and another on the secretion, and we want to combine the actions of all. We do not know exactly what is the actual factor at work in the production of any given case of constipation. Of course, the author does not pretend to know definitely whether a given case of constipation is due to defective muscular action or to defective secretion or to defective nervous control, therefore in the treatment it is better to give a small amount of an agent which will act upon each of these different constituents. For instance, one can give 3 or 4 minims of tincture of aloes with the idea of stimulating the peristalsis of the intestines, and also 10 grains of sulphate of soda to increase secretion. One has to remember also that aloes has a

gripping action, and it is necessary to put something into the medicine to prevent it. Of the preparations with that action, one of the best is belladonna, so that one adds about one minim of the tincture of belladonna to the mixture. It is always well to give in addition a carminative (such as syrup of ginger 20 minims, and pepper-mint-water to one drachm). Some such mixture as that may be given both night and morning. One has to find out what dose is required to produce a daily action in the case with which one has to deal, and having found what dose is required, one should maintain it for a number of weeks. It should then be gradually discontinued, and probably we will find that by the end of that time the bowels have learned to act spontaneously. Sometimes even that combination of aperients is not sufficient. Some of these cases are so obstinate that even stronger measures are necessary to bring about what is desired. And in such a case we may add syrup of senna, which acts on the small bowel as well as the large one, 15 to 20 minims of the syrup being added to each dose of the mixture.

Some special indications for the use of drugs may be gathered from the study of the motions. If they are white, chalky, or friable, we will find that there is nothing so good as podophyllin. It is best given in the form of the tincture, one or two minims two or three times a day being the dose. It may be either added to the mixture just described, or it may be given by itself. If there is much straining and the motions are hard and passed with much difficulty and tenesmus, we will find that sulphur gives specially good results. The author uses it in the form of the confection, in half-teaspoonful doses. It softens the motions in a wonderful way, and children take it well.

THE HYOSCINE TREATMENT OF DRUG AND LIQUOR HABITS.

The THERAPEUTIC GAZETTE has up to the present time published the important papers on this subject. The following report by WAGNER from the *Cleveland Medical Gazette* for June, 1905, is therefore of unusual interest to our readers:

1. Hyoscine, particularly when combined with atropine, is antagonistic to the morphine and cocaine habits.

2. Its administration in the manner described will abolish the desire for these drugs in from 72 to 144 hours, without suffering or inconvenience on the part of the patient.

3. This treatment is not devoid of danger, and it is most important that no case be attempted without a special nurse, day and night, during active treatment, so that the patient is not alone for a minute during this period.

4. A course of tonic treatment and rest should follow the active treatment.

5. The treatment of the alcohol habit was devoid of positive results, excepting only a temporary loss of the desire.

6. The "overpowering desire to sleep," mentioned by pharmacologists as one of the physiological effects of hyosine, failed to manifest itself, even when this drug was given uncombined with others.

THE TREATMENT OF PUERPERAL INFECTION.

To the *Lancet* of May 27, 1905, McCANN contributes an article on puerperal infection. In addition to discussing the operative measures which are necessary he gives the following details as to general treatment. In regard to serum it must be admitted that up to the present time the results obtained from its employment have been disappointing. Moreover, in the majority of published cases other methods of treatment had been employed, thus rendering it difficult to determine the particular rôle played by the serum treatment. Recently more scientific methods have prevailed, and by cultures made from the lochial discharge it is possible to determine the variety of microorganisms present. This is a most important step, and although a trustworthy serum has not yet been produced, no doubt further experiments will succeed in obtaining a reliable polyvalent serum. The serum may, as already suggested, be employed as a prophylactic where septic complications are likely to occur—e.g., serious obstetrical operations. In other cases it is necessary to begin this treatment early in the disease, giving 20 cubic centimeters two or three times in the twenty-four hours if needful. Professor Burim, of Berlin, has recently published in the *Münchener medicinische Wochenschrift*, 1904, No. 25, the results

of treatment with Aronsohn's serum, which appear to be more encouraging; but still in the very severe cases no serum as yet manufactured seems to be efficient. It is, however, to be hoped that an efficient serum may yet be put upon the market.

In the treatment of puerperal infection it is necessary to maintain the patient's strength by the frequent administration of a fluid, easily digestible diet, and, above all, by the free administration of alcohol in large doses, which are well borne in this disease. Tepid sponging with vinegar and water is comforting and tends to reduce the temperature. Immersing the patient in a cold bath for ten minutes, which is cooled gradually three degrees lower, followed by the employment of a cold douche, may be tried in desperate cases. Poultices applied to the hypogastrium are beneficial in peritonitic cases, and for the same purpose ice-bags may be used. The subcutaneous injection of normal saline solution is a valuable remedy, assisting in the elimination of toxic material.

Drugs.—Quinine is still a drug upon which reliance may be placed in the treatment of puerperal infection, but the author does not recommend it given in very large doses, for he has found that smaller doses are quite as efficacious. Sulphate of quinine given in doses of from three to six grains every three or four hours, combined with carbonate of ammonium in an effervescent mixture, is a good prescription. To this may be added tincture of digitalis, tincture of nux vomica, or liquor strychninæ hydrochloratis, according to the condition of the pulse. This effervescent mixture can be taken even in the presence of the nausea and loathing of food which are so common in this disease. Another drug which is very valuable in puerperal infection is calomel, which should be given in frequently repeated small doses in order to maintain a slight amount of diarrhea.

In two severe cases, recently seen by the author in consultation, the administration of calomel had more effect in reducing temperature than large doses of quinine. When quinine and calomel were given together the temperature fell and the patient appeared to be better, but when quinine was given alone no lowering effect on the temperature was noted;

indeed, it became slightly elevated. Calomel was given alone and a marked improvement resulted. In one of these cases the temperature rose to 107° F., but under this treatment both patients completely recovered. During the administration of calomel we should watch for signs of mercurialism. This does not happen so frequently if diarrhea is produced by the medicine. In one patient who exhibited marked tenderness of the gums the calomel did not produce diarrhea. When signs of mercurialism exist the drug should be discontinued, and sulphate of magnesium should be given. As the condition of the patient improves on the quinine and calomel treatment a change may be made, and large doses of perchloride of iron may be substituted, together with sulphate of magnesium to keep the bowels acting regularly. If we give the perchloride of iron when there are nausea and slight vomiting it is not well borne by the stomach, whereas the effervescent quinine mixture rarely disagrees. The author's advice is, then, to begin with quinine and calomel, and in the later stages to administer perchloride of iron and sulphate of magnesia. For the relief of pain, if severe, some preparation of opium may be required. Morphine may be injected subcutaneously or given in a suppository, but in the author's belief it is better to be avoided. It is not wise to attempt to control the diarrhea unless it is excessive, and then the administration of Dover's powder will be found useful, given in doses of from 10 to 30 grains.

The presence of a purulent collection in the pelvis calls for prompt surgical treatment. Parametric abscesses must be opened and drained. Where the pus is situated in the lumen of the Fallopian tubes (pyosalpinx) or in the substance of the ovary (ovarian abscess) immediate operation is required. If the swellings are adherent and accessible from below the pus should be evacuated by vaginal section; in other cases the abdominal route is indicated. Hysterectomy has been advocated and adopted in the treatment of puerperal infection, but it has only a limited application. Where a general infection is present the removal of the uterus is not only attended by very grave risk, but could not be expected to benefit the patient. If, however, there is localized

infection confined to the uterine walls, hysterectomy is indicated and the results obtained are good. Abscess formations in the uterine walls call for this operation. In those distressing cases of criminal abortion where the uterine wall has been perforated, hysterectomy might be tried if the general condition of the patient were favorable. As an adjunct to other methods of intra-uterine treatment, especially where peritonitis exists, an opening may be made into Douglas's pouch by incising the posterior vaginal wall. This method was strongly advocated by the late Dr. Pryor, of New York, who also recommended packing the pelvis with gauze. It is better, however, to drain the pelvis with one strip of gauze, which should be removed in forty-eight hours. A gauze drain acts well if the peritoneal effusion is serous. If it is purulent a tube is to be preferred.

LEAD AS AN ABORTIFACIENT.

Although lead even in ancient times was popularly considered to possess a specific action on the genital organs, yet it is only within recent years that its criminal use as an agent for procuring abortion has come prominently under notice. In 1893 Dr. Pope, of Leicester, recorded two fatal cases of lead poisoning in which diachylon plaster had been taken for the purpose of bringing on abortion. Lehmann has denied that lead plaster produces any toxic symptoms, but evidence as to its disastrous effects as a poison and abortifacient has gradually accumulated, until it may safely be affirmed that it is one of the most common and certain agents in the production of abortion at the present time.

The criminal employment of diachylon plaster in the midlands of England, and also in certain parts of northern Germany, has been frequently reported; while quite recently Dr. Arthur Hall has published a striking account of the prevalence of lead poisoning amongst women in a comparatively limited district of South Yorkshire. He found that ten out of eighteen women who suffered from symptoms of plumbism admitted having taken some form of abortifacient, while there was also strong reason to suspect the same cause of illness in the others.

In some of these cases an unexpected source of the poison was discovered in patent pills, which on analysis were found to contain lead. These pills bore the usual label, "Dr. —'s famous female pills are world-renowned and unequaled," etc. Of the eighteen cases referred to eleven aborted.

These facts serve to indicate that medical men must keep the possibility of lead poisoning in view, even in districts in which accidental plumbism is uncommon, and that obscure cases of abdominal pain, vomiting, and constipation in women of child-bearing age may have their origin in such a source.

The much wider question is also raised, whether the sale of a deadly poison and powerful abortifacient should be allowed to go on under the thinly veiled pseudonym "female pills."—*Edinburgh Medical Journal*, June, 1905.

A FEW CONSIDERATIONS IN THE TREATMENT OF VARIOUS CARDIAC CONDITIONS.

LAMBERT writes a paper under this title in the *New York State Journal of Medicine* for June, 1905. He gives excellent advice when he states that we must regulate the patient's exertions—the patient's environment—more than nag the heart with drugs. If the compensation is broken, then rest in bed; if dilatation has taken place, we must go to the digitalis group to lengthen the diastolic pause, diminishing the number of systoles, and thus increasing the time for cardiac nourishment. Small doses of the powdered leaves of digitalis with the extract of gentian are the least liable to disturb the stomach. A grain of the digitalis leaves in twelve hours is often sufficient and is better than larger doses. One can divide this grain in varying amounts at varying intervals in the twelve hours. Strychnine sulphate or tincture of nux vomica is also often of great value. It seems, in some cases, as if small doses of potassium iodide had a beneficial effect in arresting the rapidity of the progress of the atheromatous changes. This drug is not always well borne, and often upsets digestion, and is, at best, disagreeable to take. There are many schemes recommended which will disguise the taste and which will diminish the digestive disturb-

ance. In the author's opinion the best one is to give the drug in a mixture which contains aromatics and some artificial digestive substances. Often potassium iodide given in milk is well borne. Large doses, except in syphilis, are distinctly contraindicated. About five grains three times a day is sufficient.

Often disturbances of blood-pressure and the consequent arterial changes are due to disturbances of digestion, and by treating these disturbances one obtains the same desired ends as by treating either the arteriosclerosis or the cardiac conditions direct. Here, also, the various kidney lesions come into account, and these patients have been styled "cardio-nephritics," which is not a bad expression for some of these conditions. It is often impossible to say whether the cardiac or the nephritic lesion comes first, and it is often equally difficult to decide which demands the most urgent treatment. As good a rule as any is that if the heart is in reasonable compensation let it alone and treat the kidneys; if the heart is out of compensation, treat it and let the kidneys alone for the time being, if they are doing a reasonable amount of work. Here it is that a careful estimate of blood-pressure will often aid us, and often by reducing the excessive high pressure one will succeed in relieving both the cardiac strain and the nephritic incompetence. Here often glonoin or sodium nitrite will relieve the situation. Sometimes small doses of aconite act equally well as arterial dilators.

In general, the author believes we will do better if we look at this form of heart disease as a disease of the heart muscle, and, remembering the cardiac physics and the physics of the circulation, try to relieve the strain on the heart from whatever cause, whether external, from without the body, or internally in the arteries, than we will do if we try to treat the heart directly. Of late years the author's own experience has forcibly drawn his attention to the number of patients suffering from chronic atheromatous disease whose final illness runs with an irregular rise of temperature or a sufficient degree of temperature to be called an irregular fever. These on post-mortem examination show an acute lesion grafted on the chronic valvular trouble. This is generally the so-called verrucose form of acute

endocarditis—that is, the terminal infection of many of these patients is an acute infective endocarditis added to the chronic valvular lesion. It seems to be more often of the vegetative type than of the ulcerative type, but it is the final infection that ends the scene.

We have long realized that it is in this form of cardiac disease that the attacks of angina pectoris develop, and this syndrome is more dependent on the intangible diseases of the coronary arteries than it is on the valvular damages that are more easily made out. In fact, Balfour rightly says: "In every case of angina the greater the suffering of the patient and the less there is discoverable wrong with the heart, the greater the danger; hence the worse is the prognosis. A man with an intermittent or irregular heart may live for many years, but his life is handicapped by his heart, and if the cause of the myocardiac development is irremediable or is carelessly allowed to continue its injurious influence, in no long time the heart dilates and the declination becomes more rapid. At any age an intermittent or irregular heart is amenable to treatment and may be cured, but a heart dilated after middle life is, to say the least of it, only rarely rehabilitated; it has taken the downward step which is seldom retraced. Any violent shock may force even a strong heart to intermit or become irregular, but in such the heart intermissions die away in from six months to a year. Any sudden shock acting on a feeble heart may prove immediately fatal, or a less severe shock, worry, or anxiety may bring on intermittences and irregularity, or may precipitate various dilatations of the heart, terminating fatally in a few months, anticipating by more than a dozen years the natural progress of the affection."

This prognostic summary from Balfour is worthy of consideration, and it is extraordinarily true in its shrewd accuracy. It is also well to remember the observations of Mackenzie, that irregularities in youthful hearts are due to irregularity in the length of the diastole, and the irregularities of hearts after middle life are due to an irregularity in the muscular contractions of the ventricles, and hence in later life its significance is of much more serious import, and really amplifies the prognostications of Balfour.

THE EXPERIENCE OF NINE YEARS IN THE TREATMENT OF DIPHTHERIA WITH ANTITOXIN.

McCOLLUM contributes to the *Boston Medical and Surgical Journal* of June 1, 1905, an interesting paper bearing this title. After giving us many statistics from his own and other clinics he quotes cases in which massive doses were used, and tells us that many more cases might be cited in which large doses of antitoxin were given with satisfactory results. He proves that small doses of antitoxin are of little avail in the treatment of grave types of the disease, and that, in order to obtain the best results, the serum must be heroically administered. It is true that all of the patients to whom large doses of antitoxin have been given have not recovered, but so many of them have that one must be convinced that large doses are imperatively demanded in very severe cases. When death has occurred, it has been from nerve degeneration or from sepsis. In no instance was there any injurious effect produced by either the large or small doses of antitoxin. Albuminuria, although present in many cases, cannot be attributed to the serum, as albuminuria is one of the most frequent symptoms in diphtheria. Heart complications of a serious nature have not been so frequent in the patients treated at the South Department—nearly 15,000—as would have been the case in a like number treated without antitoxin. Paralysis, although occurring in the severer cases, has not been so frequent as it would have been in an equal number of cases treated without antitoxin. Urticaria and arthralgia are certainly very annoying complications, but they do not imperil the life of the patient, and are, therefore, not worthy of being considered an argument against the use of the serum. It has been observed that the serum from certain horses caused a larger percentage of cases of urticaria than that from others. There is no explanation of this fact. It is to be hoped that in the future there may be some way of eliminating this troublesome symptom. The time in which an urticaria may appear varies from ten minutes after the injection of antitoxin to five weeks. Abscesses after the injection should be of rare occurrence, and when they do appear are an indication of some error of technique in

the sterilization of the syringe, or in the quality of the serum.

The beneficial effects of antitoxin for immunization have been demonstrated by the experience at the Children's Hospital in Boston and also at the Infants' Hospital. Since 1887, according to Dr. Rotch, when immunization of every patient was commenced at the Children's Hospital, there has not been any outbreak of diphtheria among the patients. Previous to that time the wards were frequently closed on account of the prevalence of this disease. In February, 1900, immunization was commenced at the Infants' Hospital, and since that time there has not been any outbreak of diphtheria.

The immunization of patients in the scarlet fever wards at the South Department has been productive of much good, as there has been no outbreak of diphtheria in these wards since immunization was commenced.

It is evident from the foregoing statistics, first, that antitoxin is a remedial agent of immense value in the treatment of diphtheria, and should be classed among the great medical discoveries of the nineteenth century; secondly, that in order to obtain the best results it is important that the serum should be given at the earliest possible moment in the course of the disease; thirdly, that in attacks of diphtheria of a severe type antitoxin should be given in very large doses; fourthly, that in laryngeal diphtheria, in the majority of instances, intubation is the operation of election.

LOBAR PNEUMONIA IN CHILDREN.

In *American Medicine* of May 27, 1905, HULL tells us that the treatment of this disease in children differs but little from that in adults. The author has seen a few cases that were apparently aborted by quick counter-irritation and stimulation of the emunctories, but whether these would have developed further without this treatment the author is unable to assert positively. Ordinarily, the author does not believe the disease can be shortened. There is an intoxication from a toxin formed by the pneumococcus. Researches have demonstrated that the elimination of the toxin by the emunctories decreases until the crisis is reached, when

it is markedly and suddenly increased. So far nothing has been found that will prevent the further formation of the toxin after it is in sufficient quantity to produce the symptoms of the disease, or that will hasten its elimination. The rational treatment would therefore seem to resolve itself into prophylactic measures to prevent infection, and if infection has already taken place, to limit it and the formation of more toxin by destroying as many of the infecting agents as possible. Creosote internally and by inhalation in vapor of steam succeeds in some instances if used early, and aided by counter-irritation, catharsis, diuresis, and diaphoresis. When the disease has developed—that is, after the exudate has taken place, or during the stage of red hepatization—there is no hope of aborting it. It is then a question of the patient's powers of resistance, of sustaining the child until the crisis is past and convalescence is established. To aid in the fight, rest of mind and body, an abundance of fresh air and water, good nursing, proper food and stimulation, with proper care directed to the emunctories, are the requisites in every case. In carrying out the general lines indicated, symptoms must be treated as they arise. The pain of the first few days is best relieved by hot or cold applications. A mustard and flaxseed meal poultice kept on until the skin is reddened thoroughly, followed by hot cloths or the hot-water bag, often gives great relief. In other cases the ice-bag or coil does better, while in some, in which the cough is also very distressing and aggravates the pain, we must resort to small doses of codeine.

An occasional dose of calomel will stimulate the secretions and often relieve a distressing tympany. Vomiting is best treated by rest, and diarrhea by diet. The chief danger to guard against is heart-failure, so-called. French observers have shown the toxin of pneumonia contains products that depress the arterial circulation. These ectasins produce vasomotor paralysis, and this gives the characteristic pulse of advanced pneumonia. When the heart muscle is affected, the rhythm of the pulse is disturbed, and there is marked dyspnea; but the rapid, thready pulse that we ordinarily meet is due to dilatation of the arterioles. This paralysis indirectly produces distention of the right heart, more than does the obstruc-

tion to the circulation by consolidation of the lung. This is illustrated by the fact that the latter obtains just as much immediately after the crisis; and yet the pulse is markedly improved. Those drugs which counteract vasomotor paralysis and stimulate the right heart should be employed. Ergot, adrenalin, and strychnine have been of service. The author's preference is for the latter. Nitroglycerin should be preferred to digitalis, because of its more rapid action, and because digitalis acts more on the left heart, while nitroglycerin has its greatest effect on the right. So great an authority as Jacobi advises the use of large doses of digitalis in these conditions, frequently repeated, and discontinued as soon as the desired effect is obtained; however, he uses nitroglycerin in conjunction with it. Continued use of either of these drugs is not recommended.

Alcohol in children should be used sparingly (not at all at first), but increased if need be toward the crisis. Many patients do better without it, while some require it in large quantity. Each individual case must be decided by the attendant. Dr. Cohen has given as one of the causes of heart failure a tendency to the formation of clots; the ammonium salts keep the blood alkaline and fluid, and are more useful for this purpose and as stimulants than as expectorants. Expectorants are not needed until after the crisis. The author has had no experience with the serums, so highly vaunted by some; but the consensus of opinion seems to be that none has yet been made that can be trusted.

The fever is best relieved by baths or packs. Cold should be used if the reaction is not too great; but if the feet and hands become chilly after a bath or are cold before the bath is given, hot sponge baths or packs will reduce the temperature and stimulate the circulation better than cold, and should be preferred. The coal-tar products benefit the druggist far more than the patient, and should not be used. Ice to the head, heat to the feet, and small doses of calomel best relieve the delirium. In convalescence, avoidance of sitting up too early, tonics, and care in feeding will hasten recovery.

It is most important to avoid over-treatment of this disease in children. Their recuperative powers are enormous, and

if given a fair chance they will recover. The physician's function is to foresee difficulty and avoid it if possible, and to stand by and extend aid when difficulty comes. Never do too much, and avoid unnecessary interference.

THE TREATMENT OF LOBAR PNEUMONIA.

KOPLIK in the *Boston Medical and Surgical Journal* of June 29, 1905, reminds us that as lobar pneumonia is an acute infectious disease, absolutely self-limited in its course, uninfluenced by any mode of specific treatment that we know of, it should be the duty of the physician to manage it in an infant or child very much on the same principles as he would manage a case of any other infectious disease, such as typhoid fever, with a certain allowance for the duration of the disease and the severity of the infection.

In lobar pneumonia the temperature, though continuously high for days, does not exert those changes which the continuous temperature for weeks does in typhoid fever. On the other hand, the strain on the heart in lobar pneumonia for the period of infection of one week is greater than it is for the corresponding time of such a disease as typhoid fever. We refer rather to the physical strain. In typhoid fever the effect of the continuous temperature and toxemia on the heart muscle is of the slow, progressive type, whereas in pneumonia the effect is sharper and crowded into a shorter space of time than in the disease of longer duration, and therefore we have fewer changes in the myocardium as such, but more strain on the vitality of the muscle tissue, due to toxemia, high temperature, and the obstruction of the circulation in the lung. In other words, in pneumonia there is really more heart strain. In typhoid fever we have more of the slow, toxic myocarditis. The physician must be guided by the requirements of each individual case. In a younger child, on account of the high mortality and the lack of resistance to infection which we have seen, especially below two and one-half years of age, lobar pneumonia will require more active management on the part of the physician and the nurse than when it occurs in a child above six years of age, for in older children the disease is better

borne than in younger children. What seems to overwhelm younger infants and children is the violence of the infection and the strain on the heart accompanied by the temperature. The continuously high temperature of a week is less well borne by the child below three years of age than by one above it, and for that reason requires more active, judicious treatment. In an older child a temperature of 104° , in the author's opinion, is a normal temperature of pneumonia, and would be apt to cause very little disquietude, whereas a similar temperature in a young infant or child, persisting for any length of time, would need much more active treatment because it does much greater damage to the organism. The heart needs more support to conquer the infection in the younger infant and child than in the older subject. In children in general the heart is much more fit to withstand the infection of lobar pneumonia than in the adult, for they have no constitutional or acquired taints, such as alcoholism or syphilis, to stand in the way of recovery.

The temperature in lobar pneumonia, as stated, requires treatment according to the amount of mischief it is doing. Some infants and children will bear remarkably well a temperature which other infants of the same age will not. Hydrotherapy is our sheet-anchor in the treatment of the temperature. It is only in exceptional emergencies that we resort to other measures. In applying hydrotherapy to infants and children, it must not be forgotten that the severer methods, such as the cold bath, or the Brand bath, are second in importance to the milder measures of sponging, or the application of cold compresses wrung out of water at a temperature of 75° to 80° F. In the management of his hospital cases the author has found that infants and children, as a rule, bear the cold bath very badly. They become blue, the reaction is delayed, and it is very difficult in some children, particularly bottle-fed infants, to rouse them out of the depression which is caused by the application of the cold bath. He therefore prefers sponging in these cases, and applies a certain index. If an infant or child does not react from a cold sponge he applies a lukewarm sponge. In some infants and children it is impossible even to sponge, and in such

cases he applies compresses, wrung out of water at 75° to 80° F., from the neck to the umbilicus.

The heart should always be supported if necessary. Some children, especially those above five years of age, seem to bear the disease so well that very little, if any, cardiac support is called for. In children below this age some require active cardiac support, and this is met as the case demands. Alcohol and digitalis are the principal remedies, in the author's estimation, in supporting the heart in lobar pneumonia in infants and children. A reliable tincture of digitalis is the most convenient preparation to use. Alcohol in the form of whiskey is a most valuable preparation, and much better than brandy. It should not be given in excessive doses, as it is apt to upset the stomach, and therefore interfere with nutrition. If cyanosis is present, showing a certain amount of strain on the right ventricle and insufficiency of the left, nitroglycerin is a most useful remedy—at least the author has found it so, given in doses of $1/100$ to $1/150$ of a grain every few hours. In young children and infants a smaller dose is called for. Strychnine is a very popular drug, he finds, among practitioners in the treatment of pneumonia of all kinds. Its use in infants and children is most prevalent, and some physicians advise the use of this drug to its physiological effect. The author has seen cases of pneumonia treated with strychnine to such an extent that it was necessary to suspend the drug and to treat the physiological effects of the strychnine rather than the pneumonia; in other words, the child exhibited the effects of poisoning with strychnine, and was suffering more from this than from the pneumonia. He would, therefore, beg that this drug be used with greater caution in the treatment of pneumonia, more especially as, from a scientific standpoint, we do not as yet know the exact mode of its action in this disease. In all probability it supports the respiration by a so-called stimulation of respiration. If such is the case the author advises its moderate use in the treatment of this disease. It should not be employed in those cases, examples of which the author has repeatedly seen, of nervous children who, even without its use, show tremors and unrest due to toxemia and high temperature.

*THE NECESSITY OF ATTENDING TO
AURAL DISCHARGES.*

Under this important title the *Lancet* of June 17, 1905, remarks that persistent discharge from the ear has not until comparatively recent years been recognized in its true significance by the profession, and it is only amongst the more cultured and intelligent of the laity that any real appreciation of its potential dangers exists. The reasons for this are not hard to find, for although Sir William Wilde, the famous Irish aural surgeon, in 1840 pointed out the dangers accruing from neglected aural discharge, yet unfortunately his words did not make a due impression upon the medical profession. Wilde lamented the fact that it was considered dangerous to check the discharge of otorrhea as being a fruitful source of trouble, but we find that this idea persists even now amongst the public, while until recently many practitioners of medicine failed to see the possible dangers implied in an aural discharge. An aural discharge frequently ceases at the onset of intracranial complications, so that the symptom no longer exists just as the seriousness of the condition becomes manifest.

Another circumstance which has rendered the laity blind to the dangers of otorrhea and slow to seek medical advice is that the patient frequently gets well without treatment. This is the origin of the belief that a child "will grow out of the discharge." The by no means infrequent cases of spontaneous cure have also had another result—quacks have seen in ear diseases a likely malady for cultivation. Quacks, in fact, at all times have reaped a rich harvest from the "treatment" of aural diseases, and in England has been witnessed the immense scale upon which the Drouet Institute, assisted by a complacent press, conducted its operations. Even the Drouet Institute, however, hardly achieved the superlative wickedness of a French aurist who killed a large number of people by filling their ears with plaster of Paris in order to "cure the discharge." We have read that this person "received his deserts," but we cannot believe it—the age is too humanitarian.

To return, however, to the undoubted neglect of aural disease by medical men in times gone by, the scanty attention

given to the teaching of the subject has been responsible for the disregard of aural discharges. We are awake now in the matter, and there is one important fact also which has worked in a very practical way for the due recognition by the lay mind of the latent dangers of otorrhea. This is the fact that life assurance companies with but few exceptions are now declining lives where this condition exists. The public can appreciate the significance of this, and see that it means a simple assertion that a discharge of the ear is a danger to life. Careful and skilled attention is necessary for the treatment of these conditions, but this skill and care are no more beyond the range and abilities of the averagely endowed practitioner than are the necessities of midwifery. Happen what will, a large proportion of cases will require operation, either a minor operation, such as removing the ossicles with the remains of the drum, or the more extensive radical operation. Both these are extremely satisfactory in skilled hands, and the former finds its chief use in soon enabling the busy man to resume his labors. But it cannot be too firmly impressed on sufferers from suppurative otitis media or those responsible for the well-being of such persons that a chronic otorrhea is a constant danger.

*THE HEART AND CIRCULATION IN THE
MANAGEMENT OF PULMONARY
TUBERCULOSIS.*

The *Medical Record* of June 3, 1905, contains an article on this topic by VON RUCK. He reminds us that in the treatment of individual cases physical examination of the heart often affords valuable indications, while it also frequently aids in the earlier recognition of instances of heart strain, in which tachycardia appears only upon physical exertion, and in which at rest the pulse-rate is not unduly rapid. The author refers to cases in which the secondary pulmonary sound is heard as decidedly weaker in the second left interspace, near the sternum, than the combined aortic and pulmonary sounds as heard to the right; also to those in which there is a marked accentuation of the second pulmonary sound associated with decided epigastric pulsation, and in which, when the patient is at rest, no

undue frequency of the pulse is observed. He believes, that his experience justifies him in stating that the majority of such cases will show an inordinately rapid pulse in relation to moderate physical exercise, the one class suffering from deficiency in power of the right ventricle, while in the other the heart labors, even at rest, under excessive strain. In such cases the suspicion should at once arise that uncontrolled exercise is liable to be followed by injury, and for this reason exercise should be regulated by observations of the pulse, and kept within safe limits at all times, even though the patient is still well nourished and is practically free from fever.

Patients in whom tachycardia is a constant symptom while at rest should be kept in a recumbent position, even though no evidence of dilatation is present, and it goes without saying that the more nearly absolute rest, the greater are the prospects of overcoming this symptom. The disregard of this indication will sooner or later lead to disaster, either on the part of the heart directly, or by the advent of advancing destructive changes in the lungs sufficiently often that recovery or radical improvement will constitute a rare exception. When once the symptom of constant tachycardia has been overcome, properly supervised exercise, combined with general hygienic management, becomes a curative measure for patients with a weak secondary pulmonary sound, except in those cases in which, by rapid progress of the disease in the lungs and advancing obstruction in the pulmonary circulation, an unfavorable course is produced.

In cases in which the right ventricle is laboring under tension, and tachycardia is not a symptom when at rest, exercise cautiously regulated to prevent any undue strain is rather calculated to prevent degeneration of the heart muscle and to favor the occurrence of hypertrophy, if not already present. But in these cases also the heart is liable to yield to strain under the most careful management, when intercurrent pulmonary inflammations, extensions of the tuberculous disease in the lungs, pleural effusions or marked fever of the long duration supervene.

In addition to rest or limited exercise, as indicated in the individual case, the

diet should be given especial attention. In many instances the author has observed attacks of tachycardia to follow the ingestion of large meals or unsuitable food. The amount of food taken at a time should therefore be small, and the intervals of feeding more frequent. Albuminous foods should predominate in the diet, and articles liable to cause fermentation should be avoided. Daily evacuation from the bowels should be secured. Such patients should be brought into the open air whenever possible, and in cases in which the maintenance of the recumbent position is essential, the patient may be transferred to a cot without rising, and carried thereon to an open piazza, or the bed may be brought near to an open window.

To favor the cutaneous circulation, cold rubs in suitable cases may be employed and massage may be resorted to. In distressing attacks of palpitation an ice-bag applied over the heart frequently affords relief. Alcoholic drinks and tobacco are to be strictly prohibited. The usual cardiac tonics are only occasionally of benefit, and often appear to do harm by deranging the digestive organs.

The general treatment of actual or suspected dilatation must be carried out upon the same principles. In addition to the measures which have been mentioned, digitalis should be administered. In dilatation it appears to do more good, but it rarely proves as effective as in cases in which there is no obstruction in the pulmonary circulation. In instances in which the power of the heart fails rapidly or suddenly, diffusible stimulants may be employed with a view of prolonging life. Indirectly, all measures which otherwise tend to arrest the progress in the lungs, or favorably to influence its symptoms, and especially the fever, or which tend to reduce the obstruction of the pulmonary circulation, will of course prove of benefit as regards the heart and circulation.

In conclusion, the author calls attention to the analogy between the relation of the heart and circulation to the local disease in the lung in acute pneumonia and in chronic pulmonary tuberculosis. According to his conception, this relation differs chiefly in that the pulmonary obstruction develops rapidly in the one and more slowly in the other. By reason of this difference much more can be done to

conserve or increase the power of the heart in phthisis than is possible in acute pneumonia. In both affections the condition of the heart and circulation has a great influence upon the prognosis, and often determines the outcome of the disease. If the author is correct in this deduction, it follows that close observation of the circulation in the course of phthisis is imperative, and we must regard as a signal of danger a weak second pulmonary sound, just as every physician does the advent of this phenomenon in cases of acute pneumonia.

THE TREATMENT OF ECZEMA AND IMPETIGO IN CHILDREN.

To the *Medical Record* of May 20, 1905, ALLEN contributes a paper in which he states that while in a general way it may be admitted that improper feeding, faulty digestion and assimilation are at the bottom of persistent and obstinate infantile eczema, the clinical fact remains that the vast majority are susceptible of cure by local measures alone. Most of the infants in the writer's public services have given no indication of disordered digestion, and the greater part of them have recovered without making any decided change in their feeding. In the very young the mother's breast has furnished the sole nourishment, and, so far as appearances of both child and mother indicated, there was no change called for further than perhaps to regulate the hours of nursing. The health of the mother and quality of milk are important. Manufactured foods and sweet condensed milk are to be avoided as a general proposition. The indications are usually to soothe and protect a highly inflamed, pruriginous area, and secondarily to destroy germs and act upon deeper infiltrations and dilated vessels. Naturally underlying constitutional defects must be remedied and all faults of diet corrected. In general it may be said that symmetry of lesion speaks for constitutional origin, asymmetry for local cause.

In the choice of local remedies we must be governed by causative conditions, stage and state of the affection as it presents itself.

Among general local measures, to fulfil the objects of disinfection, protection, soothing and favoring the growth of new

epidermis, the author wishes especially to advocate the use of methylene blue solution as originally, he believes, suggested by him, and employed almost as a routine practice where the disagreeable feature of staining of clothing does not contraindicate its use. He employs a three- to five-per-cent watery solution as preferable to a stronger solution with alcohol, whose initial effect would be painful. In intertrigo and intertriginous eczema he believes the remedy has no equal. Next to it probably comes a weak resorcin ointment, followed by free dusting with bland, non-caking powder.

His practice is to allow the solution to dry, and then apply quickly a thin layer of collodion. This is to be repeated before the peeling collodion becomes of itself a source of irritation.

Nitrate of silver is a remedy too often neglected, perhaps, in chronic infiltrated and especially obstinate forms of eczema. It is especially useful in crusted eczema about the mouth and lips, where moisture favors constantly renewed infection. It can be used in from 5- to 20-per-cent strength, to be followed by bland ointments, lanolin, etc. The crusts can be removed beforehand with oil dressings, or 5-per-cent salicylic ointment. Salicylic acid has great worth, especially in eczema of the scalp, crusting and desquamating forms. It can be used in the form of Lassar paste or in ointment. When decidedly stimulating effects are sought, a lotion of oil of cade, green soap, and alcohol in equal parts may be applied at long intervals. In pediculous dermatitis of the scalp, faultily termed eczema, one of the mercurials, either white precipitate or red sulphuret ointment in half strength, may be used.

Resorcin is especially valuable in the seborrheic forms. The milder one-per-cent ointment, alone or with zinc oxide 10 per cent, usually suffices. Here, too, sulphur in mild form usually acts well. One important thing in nearly all eczemas is the avoidance of much water. Nothing perpetuates a moist eczema more than frequent washing. Soap is often too largely at fault, latherings being applied with the erroneous idea that the badness can be washed away.

There is one pronounced exception to this rule about water, and that is in the seborrheal forms with greasy crusts and

adherent masses of extraneous filth upon the scalp. These are as a rule washed often enough, but not intelligently or vigorously enough. Water alone does not suffice. Warm oil should be rubbed in well beforehand, and then the lather. Unless the scalp is maintained in a condition of healthy secretion and free from accumulations, it is not to be expected that the rest of the body will remain free. The areas of greatest sebaceous gland development are those characteristically implicated as a rule. In crusted impetiginous forms water is not to be withheld, but immediately after the bath antiseptic grease of some kind should be promptly applied. In the chronic infiltrated patches ichthyol has a useful field, just as in eczemas in adult life. A 50-per-cent water solution makes a good varnish, as pointed out by Klotz, and this the author makes still more permanently adherent by painting over with collodion.

The author asserts he knows of no specific internal remedy. Arsenic has been much abused. He never employs it in the eczemas of young children. To avoid eczema in infants it has seemed to him that keeping the scalp in a perfectly healthy condition contributes more largely to success than any other single factor. It does not suffice to wash the scalp in the ordinary way. The greasy adherent scales "turn" the water and remain to give a resting-place for dirt and germs. Green soap, salicylic acid, resorcin, sulphur, are all useful. A favorite prescription is: Resorcin, $\frac{1}{2}$ to 1 per cent; washed sulphur, 2 to 4 per cent; lanolin, 5 to 10 per cent; and lard up to 100.

In more chronic forms of pityriasis eczema with much itching and falling of hair in older children, associated with scaly plaques upon the neck and involving especially the margins of the hairy scalp, he employs a stronger ointment, such as: Resorcin, 1 to 2 per cent; liquid tar, 2 per cent; calamine, zinc oxide, ää 10 per cent. In treating the very frequently observed eczema of the cheeks, the chief problem is to keep our applications in contact with the skin. If the scalp is involved, the best way is to apply a bandage which covers in the whole area. This in private practice necessitates a nurse or daily personal attention of the physician, as the parent is rarely able to apply the bandage. To obviate this, the

author has devised a combination cap and mask. It is made from a single piece of stout muslin, thin Canton flannel, or other material not too thick. Sewed on or fastened with safety-pins, this answers the purpose fairly well.

INTRAMUSCULAR INJECTION OF MERCURY IN THE TREATMENT OF SYPHILIS.

The *Dublin Journal of Medical Science* for May, 1905, contains an article by FITZGIBBON upon this subject. He tells us that in 1902, owing to the favorable reports of Surgeon F. J. Lambkin of this method of treating syphilis among soldiers, the author gave it what he then thought to be a fair trial in the Westmoreland Hospital, using two preparations which were kindly procured for him by Surgeon Lambkin; one was a soluble, and the other an insoluble, preparation of mercury, for which the following are the formulæ:

℞ Sodii iodidi, gr. 10;
Hydrarg. sozoiodol, gr. 5;
Aq.æ, Mcc.

Dose: 10 minims as an injection three times weekly.

℞ Hydrargyri, 3j;
Lanolin pur., 3j;
Olei olivæ, 3ij.

Dose: 5 to 10 minims once a week.

The author found the injection of the first of these preparations occasioned so much local pain at the time, and for several hours afterward, that the patients very soon refused to submit to the repetition of so painful a process. On the other hand, the injection of the insoluble preparation, known as "Lang's cream," was not attended by any local pain beyond that of the mere needle puncture at the time, but in a large proportion of cases, some days after, inflammatory swellings, and sometimes abscess, occurred at the site of the injection.

The operation was performed with the strictest surgical cleanliness, and with the same kind of syringe in using both preparations. It was, therefore, quite clear that it was something in the cream that was at fault which caused these inflammations, and not any want of asepsis in the manner in which it was used.

In consequence of the pain caused by the soluble injection, and the risk of con-

secutive inflammation and abscess after the use of the insoluble injection, the author had to abandon the treatment after a few weeks' trial at the time he refers to.

Since the recent publication of Colonel Lambkin's admirable little book on the treatment of syphilis in the army by the intramuscular injection of mercury, he has again reverted to this method in the treatment of a considerable number of patients, both in his private practice and in the Government Westmoreland Lock Hospital. Although it is too soon to be able to say what the ultimate results will be in these cases, it may be interesting to publish the particulars of some of them as far as they have gone, and to describe the mode in which he now carries out the details of the treatment, by careful attention to which it is deprived altogether of the objections which obliged the author to give it up before. The preparation which he is now using is a modification of Lang's cream, the formula for which is given by Colonel Lambkin in his book, and it has the obvious advantage over the original cream of being rendered antiseptic by the use of a two-per-cent carbolized parolein instead of olive oil in its composition, which is as follows:

R Hydrargyri, 3j;
Lanolin anhydrosi, 3iv;
Parolein carbol., 2-per-cent, 3j.

The maximum dose in acute cases of syphilis is 10 minims once a week, which is the equivalent of 1 grain of mercury. The dose in continuous treatment is 5 minims once a week, or at longer intervals, at the discretion of the administrator.

In order to carry out the treatment without risk of misadventure there are two points of paramount importance which demand special care and attention. First, to be sure that the cream has been properly compounded and carefully preserved from deterioration or decomposition from exposure to the atmosphere or other influence which might contaminate it. Second to the quality of the cream used, but in no way less essential to the success of the treatment, comes the manner in which the doses are administered.

With reference to the first point, Colonel Lambkin calls special attention to the care with which the lanolin and mercury must be blended together prior

to the addition of the carbolized oil or parolein. This is a very troublesome and tedious process, and can be accomplished only by long-continued trituration in small quantities in a glass mortar, by or under the personal supervision of some trustworthy person. Too much care cannot be taken in the trituration of the mercury and lanolin. When prepared it has hitherto been dispensed in suitable well-stoppered bottles; but even when properly compounded and dispensed in this manner there is a risk, owing to the changes of temperature, of the mercury separating and gravitating to the bottom of the bottle; besides which, each time the bottle is opened for use there is a possibility of its contents becoming contaminated from the atmosphere.

THE DIETETIC TREATMENT OF DYSPEPSIA.

HUTCHISON in the *Practitioner* for May, 1905, states that in acute catarrh of the stomach the great indication is to give the inflamed organ rest. All food should therefore be withheld so long as vomiting is urgent, thirst being relieved by sips of hot water or the sucking of fragments of ice. If there be great depression it may be necessary to administer a little stimulant, champagne being the best form to give. Should vomiting continue for a few days it may be advisable to feed per rectum, but this is rarely necessary as the inflammation is usually but of short duration. As the symptoms subside treatment must be carried out as in gastric ulcer, although it is generally possible to return to ordinary diet much more rapidly than it is in that disease.

In the dietetic treatment of chronic gastritis the chief indication is to avoid giving any article of food which may irritate the mucous membrane of the stomach either mechanically or chemically, and excite a secretion of mucus. All crude and coarse articles must therefore be forbidden, such as the stones or skins of fruits, whole meal bread or oatmeal, and tough meats. Mustard, spices, pepper, and condiments of all sorts fall under the head of chemical irritants, and are therefore injurious, and so is alcohol, especially in its more concentrated forms. Sugar, especially cane-sugar, is also harmful, for it is a potent excitant of

mucous secretion. Most fatty substances, especially cooked fats, are injurious, but butter and bacon fat can usually be eaten in moderation. Care should be taken that the food is finely divided, eaten slowly, and but little consumed at a time. The following schedule would represent a diet suitable for an average case:

Breakfast.—Lightly cooked eggs; white fish (boiled), but not mackerel or herring; a little crisp bacon (not too fat), fowl or game; hard, dry toast with a little butter (no marmalade); a small cup of weak China tea with milk, but no sugar.

Luncheon.—Lean mutton, underdone; roast beef or white fish, etc., as at breakfast; a spoonful of mashed potato with a little spinach or cauliflower; dry toast or a rusk or two; custard pudding or unsweetened jelly; a glass of alkaline mineral water (Apollinaris, Rosbach, or Perrier), with perhaps a little claret or hock.

Dinner.—A very little clear soup free from fat; white fish (boiled) without sauce; meat as at luncheon, or a little sweetbread, or tripe; vegetables as at luncheon; custard, jelly, or stewed fruit (free from skins and stones), or a little plain milk pudding, dry toast; no savory or dessert; a glass or two of good claret or Burgundy, and some mineral water; no coffee.

THE THERAPEUTIC VALUE OF SOME DIGESTIVE PREPARATIONS, AND THE INDICATIONS FOR THE USE OF PEPSIN, IN DISEASES OF THE STOMACH.

To the *Boston Medical and Surgical Journal* of May 18, 1905, CHASE contributes a paper upon this theme. In the first place the very important question presents itself: In what diseases of the stomach is pepsin indicated?

In all gastric affections, regardless of their cause, in which free HCl is present, pepsin is not indicated, because after proper acidulation of the gastric juice it becomes active, showing that pepsin is still present. These two classes of gastric disorders comprise over 90 per cent of all stomach affections, and in their treatment pepsin is never indicated. In all cases of atrophic gastritis, and achylia gastrica, and in some cases of cancer of the stomach, both HCl and pepsin are

lacking. As a result, here we meet a true indigestion of certain foods in the stomach.

It is upon our knowledge of the existence of such conditions that large doses of HCl and pepsin have been based, and extensively employed. It is perfectly evident that pepsin alone, in these conditions, is of no service, because we know that even the native pepsin, when present, is not active except in the presence of a certain amount of HCl, consequently both HCl and the ferment are used.

By chemical examination of the gastric juice we can determine accurately any deficit of HCl which may exist; hence it would seem an easy matter to supply such a deficiency by administering the acid by mouth. This is the object attempted by those who use large doses of HCl together with pepsin. But in practice it is found that the large doses necessary for this purpose are impracticable of administration. Such being the case, it is a useless proceeding to use pepsin, and then attempt to render it active by giving large quantities of HCl.

While a diversity of opinion yet prevails regarding the subject, the following quotations will give one an idea on which side of the question the preponderance of evidence rests:

Einhorn: "Pepsin used to be, and is yet, frequently given in combination with HCl. Most writers, however, concur in the absolute inefficacy of this drug, and for two reasons: (1) In most instances, even of diminished secretion, there is yet an abundant quantity of pepsin present. (2) Most pepsins in the market do not, by any means, show as strong digestive properties as the true pepsin of the stomach. Of late years I have entirely abandoned the use of pepsin."

Ewald: "Pepsin was for a long time regularly prescribed with HCl with the pernicious idea that if it did not help, it certainly did no harm. Its use should be restricted to those cases in which an absence can be proven."

Reigel: "In general the administration of pepsin is rarely indicated. The digestion of albumen is rarely improved by the administration of hydrochloric acid, even if large doses are given together with pepsin. This is due to the fact that the quantity of HCl that we can

administer is very much smaller than the quantity needed to make up the deficit of HCl in the gastric juice."

The theory was that HCl and pepsin given by mouth would take the place of these agents when lacking in gastric juice, but in practice it is found they do not. However, stimulation of the functions of the stomach, by means of our various methods of treatment, is probably far better therapy than a useless or even successful attempt at their substitution.

TOXEMIA OF PREGNANCY.

In the *Canadian Practitioner* for May, 1905, McILWRAITH gives his views of the treatment of this state. Believing that the pathological condition is one of toxemia, he is convinced that elimination is the curative treatment, other measures being directed to the control of special symptoms. The treatment laid down for his hospital cases is as follows:

1. If the patient be conscious, give calomel grains 5 at once, washed down with saturated solution of magnesium sulphate, two ounces. It takes too long to give divided doses when a convulsion occurs. Then anesthetize the patient and give an injection of sterile normal saline, one pint beneath each breast, and at the same time let the nurse give an enema, consisting of magnesium sulphate saturated solution one ounce, glycerin two ounces, water three ounces, as high up in the bowel as possible. Then as the patient comes out of the anesthetic give a hypodermic of morphine sulphate grain $\frac{1}{2}$. Then give alternately chloral grains 30 per rectum, and morphine sulphate grain $\frac{1}{4}$ hypodermically at two-hour intervals, as seem to be required, for convulsions or threatening symptoms. Not more than three grains of morphine should be given in twenty-four hours.

2. If the patient be unconscious, the same treatment, except that the medicines cannot be given by the mouth. This is as far as the treatment can be systematized, but varying conditions may lead one to change the treatment in each case.

It has been noted on several occasions that the convulsions ceased and the other symptoms disappeared before the bowels started to move. This, the author thinks, is due to serum, and with it toxin, having been withdrawn from the general circu-

lation into the bowel, and remaining there owing to failure of peristalsis. The glycerin enema usually excites peristalsis.

In addition to morphine and chloral, veratrum viride proved valuable. In one case of postpartum convulsions which would not yield to other measures, a hypodermic of 20 minims of the fluid extract was immediately effectual, and the patient recovered without further convulsions. The author does not advise this remedy at all except where the pulse is full and of high tension, and does not think he would use this heroic dose again. Injections of 5 to 10 minims t. i. d. is a better method.

In a recent number of the *British Medical Journal*, Dr. Nicholson, of Edinburgh, strongly recommends thyroid extract as a means of combating high pulse tension, and McIlwraith will give this remedy a trial should occasion again arise.

If all these methods fail, delivery must be accomplished, and if labor be present and the cervix taken up, it should always be proceeded with.

In one case labor was not present and the cervix was not taken up, yet he was able to dilate the cervix manually (Harris's method) and deliver a living seven-months' child. The mother wandered mentally for about a week, and had two or three postpartum convulsions, but ten days after delivery she was all right and able to sit up.

In all cases we should remember that our patient may do well enough for a day or two without food, but water is absolutely necessary. This should be given by the bowel while she is unconscious, and by the mouth—milk and water—when she can drink.

A word may be said about "controlling the convulsions with chloroform." We must remember that a convulsion seldom lasts longer than five minutes. The first stage of it is tonic, and during that stage what the patient urgently needs is oxygen—a remedy strongly recommended by Stroganoff. To this stage clonic convulsions and deep spasmodic respirations succeed. In this stage the administration of chloroform deprives the patient to a certain extent of much-needed oxygen, and she is moreover very apt to get too much chloroform. The author has seen two or three ineffectual attempts to

"check" convulsions in this way. If a patient is having a series of convulsions, chloroform may be given to break the series while eliminative measures are being taken, but this should be its sole function. The prolonged administration of it is exceedingly dangerous.

A FEW REMARKS ON THE PROPER CLEANSING OF A RUNNING EAR.

This condition, so often seen by the practitioner, demands careful study. In the *Medical News* of May 20, 1905, ALDERTON considers the necessary steps that confront us when we are about to attend the birth of a running ear, which is to follow the doing of a paracentesis of the drum membrane for an acute middle-ear abscess. If there is any place for asepsis in ear surgery it is just here, at the very beginning of our surgical interference. The canal of the ear should never be treated as beyond suspicion, but should be handled as a dangerous criminal lying in wait to do untold harm. Every vestige of cerumen and epithelial debris should first of all be removed by careful syringing and wiping with cotton pledgets, and all hairs around the orifice clipped to the surface. The ear canal should then be syringed with a solution of tincture of green soap in water at 110° F., until the skin surface looks perfectly clean. Afterward the canal should be filled to overflowing with 95-per-cent alcohol, which is permitted to soak in for at least five minutes and then allowed to flow out of the ear, without wiping. The canal is then syringed with a solution of bichloride of mercury 1 to 2000 of sterile water at 110° F.; following this the ear canal is thoroughly dried out with pledgets of sterile cotton or gauze. Meanwhile the necessary instruments, an ear speculum and a sharp-pointed scalpel or bistoury, have been sterilized by boiling in a soda solution. Under good illumination the cut is made in the posterior inferior quadrant of the drum membrane, and the extruded fluid and blood carefully wiped out with sterile cotton or gauze. The end of a thin strip of sterile gauze, half an inch wide and a couple of inches long, is then carried by means of a pair of angular ear forceps just up to the membrane, the strip lying loosely in the canal and the other end lying outside in the concha,

which has partaken in the cleansing process. The concha is now loosely packed with gauze, and this is covered with absorbent cotton held in place by strips of adhesive plaster.

Subsequent dressings should take place two or three times daily, omitting the syringings, under the same antiseptic precautions. The strips of plaster are easily detached by the use of benzine. In case the discharge is too profuse for this method of treatment, then a change must be made after a trial of twenty-four to forty-eight hours. The writer believes that where adequate drainage up to and through the drum membrane is possible, this method of treatment will bring about a quick and perfect healing, in the majority of cases.

Suppose now that we have to change our methods because of the profuseness of the discharge saturating the dressings and so establishing a channel of further infection from the outside, or that we first see the case after a spontaneous perforation of the drum membrane, how shall we meet the indications? In these acute cases the writer is of the opinion that there are only three necessities within our sphere of action: (1) the removal of the accumulating discharge from the ear canal; (2) the rendering of this canal as little septic as is possible; (3) the administration of systemic remedies with a view to modifying the intensity of the middle-ear inflammation. We certainly cannot hope to introduce any remedy efficiently into the middle-ear cavity, and the benefit to be derived from moist heat by means of syringed fluids is, to say the least, problematical, while the danger of irritating the middle-ear structures by forcible syringing is not to be forgotten.

It is just here that we find our greatest comfort in an able assistant, one who can periodically, at intervals of three or four hours, gently and efficiently irrigate the ear with aseptic water or a weak solution of carbolic acid or bichloride of mercury, etc., according to the preference of the attending surgeon. The solution should be employed at a temperature of from 110° to 120° F., about one quart being used at a sitting. Should the patient complain of dizziness or pain, the temperature and force are to be moderated.

In the opinion of the writer, the most efficient method of douching the ear con-

sists in using an apparatus constructed by attaching to the hard-rubber terminal of an Alpha "E" constant flow syringe, made by Parker, Stearns & Sutton, of New York, about two feet of three-eighths-inch soft-rubber tubing, the other end of which tubing is supplied with the glass terminal of an ordinary straight medicine dropper. The proximal end of the syringe lies in the bowl or pitcher of aseptic water and the distal end is introduced to just within the orifice of the ear canal, and just so much or so little force can be utilized as seems necessary at any step of the proceeding without any disturbance of the apparatus or of the patient. The ear can be syringed without disturbing in any way the position which the patient finds most comfortable, nor is it necessary to exert any traction on the auricle, which by the older methods is often the occasion of considerable discomfort to the patient, and, in children, of struggling and annoyance. The water, as it comes from the ear, is caught in a pus basin adapted to the patient's shape and held by the patient or an attendant. Good illumination is necessary.

After syringing, the ear canal is thoroughly dried with pledgets of cotton rolled up on a cotton applicator so as to be small but firm in the body, but fluffy on the end which is to be introduced into the ear canal. These pledgets should be two inches long and removed from the applicator before introducing them into the ear canal. They are to be carefully introduced and left in for a couple of minutes; a few should be used at each sitting. Then a wick of gauze should be introduced gently and carefully into the canal without packing, and a soft wad of cotton loosely placed in the concha of the auricle. The attending surgeon should see the patient at least once a day to supervise the procedure on the part of the nurse, and also to wipe away any little masses of epithelium, and to treat any irritation of the skin of the canal or any uncleanly condition of the canal from inspissation of the discharge. As the discharge diminishes and the other symptoms abate, so should the frequency of cleaning the ear decrease.

The writer feels that a word of caution might not be amiss: peroxide of hydrogen, a favorite remedy with many general practitioners, should never be used, either

in solution or in the form of drops, in a case of acute middle-ear abscess, its use not being necessary to cleanse the canal, and its dangers from increased tension and dissemination of infection, should it attain the middle-ear cavity, being beyond computation. In fact, the use of drops in an acutely running ear is as unnecessary as often unduly hazardous. Inflation of the ear in these acute cases is also, in the opinion of the writer, a doubtful procedure, except it be done for well grounded and conservative indications, such as the effort to determine the patency of the perforation.

When we come to consider the cleansing of an ear, the seat of a chronic middle-ear abscess, we must be prepared to conform our efforts to the conditions present, and must extend our invasion to the cavity of the middle ear itself. Should the perforation be small but well placed for drainage, at the lower end of the drum membrane, we may succeed in our attempt to cleanse the middle-ear cavity by bringing to our aid inflation, or aspiration, or syringing with a Buck's middle-ear pipette, afterward drying out with cotton on a slender applicator. The appropriate remedies may then be applied hopefully. Peroxide of hydrogen again should not be used in this class of cases for obvious reasons, and remedial drops should be used by instillation or by the pipette only after thorough cleansing, if any impression is to be made upon the mucous membrane.

If the perforation is small and situated anywhere in the upper half of the drum-head, the writer believes that the chances are against any permanent cure in most cases of chronic abscess, unless the perforation is adequately enlarged downward to the lower edge of the drum membrane, so as to provide for thorough drainage and cleansing of the tympanum.

A chronic middle-ear abscess with a perforation situated in Shrapnell's membrane demands syringing by means of an especially devised cannula, Hartmann's being the best; and this cannula can be used in connection with the writer's syringe or with a douche-bag suspended above the level of the patient's head. Buck's pipette is too small and lacks force; Blake's middle-ear syringe is objectionable because its cannula has a rigid connection with the syringe and the movement of the

syringe is transmitted; the bore of the cannula is also too small, and the quantity of water used so limited that its temperature cannot be controlled. Both instruments, however, are valuable for applying medicated solutions.

All granulations must be attacked and destroyed before an ideal cleansing of the tympanic cavity is possible.

A good-sized perforation of the drum-head simplifies greatly the process of cleansing the tympanum, for we can introduce the Hartmann cannula easily, and by rotation send the stream of water in all directions, thus thoroughly flushing out the cavity. We have an adjuvant of great value in the use of weak solutions of adrenalin chloride, which by shrinking the mucous membrane renders all the following steps in the cleansing process easier of attainment. Needless to say, the ear canal should receive the same attention along similar lines as in the acute cases, no matter which of the above conditions obtain.

THE PROGNOSIS AND TREATMENT OF EARLY PULMONARY TUBERCULOSIS.

PRICE writes on this subject in the *Edinburgh Medical Journal* for May, 1905. He believes the cough which occurs the first thing in the morning, and which is accompanied by expectoration, is useful, and should be encouraged. It may be much aided by a cupful of hot milk or cocoa or tea, and such a remedy should always be tried for the same kind of cough which occurs when the patient lies down at night. The writer even prescribes it as a first resort for the cough which is troublesome during the night, and it is quite a convenient plan for the patient to have a spirit-lamp and small saucepan at the bedside. This simple therapeutic measure is quite sufficient in a large proportion of cases of early pulmonary tuberculosis. Should this not be sufficient, a warm alkaline draught is the best addition, such as the following:

- ℞ Sodii bicarb., 10 grains;
Sodii chloridi, 5 grains;
Ammon. carb., 3 grains;
Sp. chloroformi, 5 minims;
Aq. anisi, q. s. ad 1 ounce.

In a wineglassful of warm water or milk.

This prescription is of greatest service when there is accompanying bronchitis.

In a certain number of cases of early disease where there is a troublesome cough, a small blister or iodine applied to the subclavian region of the affected side often affords relief. An irritable and ineffectual cough persisting during the day, and where there is only a very scanty expectoration resulting from prolonged efforts, is best treated by impressing on the patient the importance of restraining the cough somewhat, and by the use of inhalations of menthol, creosote, oil of eucalyptus, or oil of pine. One of the best formulæ is that of Sir Douglas Powell, which consists of

- ℞ Eucalyptus or pine oil, 3 drachms;
Oil of bitter almonds, 1 drachm;
Sp. chloroform (double strength), 1 ounce.

Sig.: Ten to fifteen drops to be inhaled half an hour after the first morning cough, in the middle of the day, and in the evening.

Dr. Coghill's famous formula is the following:

- ℞ Tinct. iodi æthereal, 2 drachms;
Acidi carbolici, 2 drachms;
Creosote vel thymol, 1 drachm;
Sp. vini rect., q. s. ad 1 ounce.

The author has found the following prescriptions very useful:

- ℞ 20-per-cent alcohol solution of menthol.

Ten minims for an hour or so on the sponge of an inhaler; or

- ℞ Creosote,
20-per-cent alcohol solution of menthol,
Sp. chloroform, aa equal parts.

Twenty minims for an hour or so on the sponge of an inhaler.

If these measures fail, a two-per-cent solution of cocaine or menthol sprayed on the back of the throat is often efficacious; and failing these, ipecacuanha and potassium or sodium bromide are indicated. It is extremely rare, and only after all other means have been exhausted, that anodynes are justifiable for this type of cough. When what may be called the ordinary cough of pulmonary tuberculosis is of frequent occurrence during the day, it is sometimes, though not often, advisable to give such drugs as ammonium carbonate, ipecacuanha, squills, and senega. If the expectoration is peculiarly tenacious, ammonium chloride should form a part of the prescription; and when there is a spasmodic element, iodide of potassium is a valuable adjunct. As a rule, it is only in the later

stages of the disease that the secretion is excessive, and in these cases the internal administration of the balsams or the inhalation of antiseptics, such as creosote or turpentine, is the best remedy.

When the cough is so troublesome at night as to prevent the patient from sleeping, and to cause consequent exhaustion, and the other remedies which have already been mentioned are not sufficient, it is necessary to give a lozenge or linctus containing opium in some form. The trochisci morphinæ or trochisci morphinæ et ipecacuanhæ is useful. Regarding a linctus, codeine is not so apt to upset the stomach as morphine. The following are the common prescriptions:

- ℞ Codeina, 1/6 grain;
Acidi citrici, 5 grains;
Sp. chloroformi, 5 minims;
Mucil. acac., 1 drachm.
- ℞ Liq. morph. acet., 7 minims;
Acid. hydrocyan. dil., 2 drachms;
Oxymel scillæ,
Aquæ, aa ½ drachm.

When the patient suffers from fits of coughing, which terminate in vomiting, after a meal, he should be kept perfectly quiet after taking food, any catarrhal condition of the stomach should be treated, and if this is not successful a mixture containing 5 grains of alum and 5 minims of liquor potassa taken shortly before meals often relieves this troublesome symptom.

Hemoptysis.—If in the early stages of the disease the expectoration is only slightly colored, it is not advisable to treat it. When the hemorrhage is more marked, it is necessary to employ therapeutic measures. Rest in bed is absolutely necessary. The effect of rest is to slow the circulation, to lower the blood-pressure, and to diminish the movement of the lungs. The patient should be in the recumbent posture, with the head and shoulders slightly raised.

Any unnecessary movement or talking should be strictly forbidden. The room should be cool, and the clothing light. If the patient feels chilly, warmth should be applied to the feet.

Stimulants of all kinds must be avoided. The food must be cold, and limited to a pint and a half of milk per day, 2 ounces meat essence, 4 ounces bread, and ¼ ounce butter, the latter two to be eaten as small, thin sandwiches.

A large ice-bag may be applied to the chest. Probably its only value is to prevent the patient sitting up. In a similar way the only result from sucking small quantities of ice is that it may relieve the cough, and the patient is soothed, because he thinks something is being constantly done for him. One of the most important indications in the treatment of hemoptysis is to lower the blood-pressure by means of free purgation. Saline purgatives are the best, such as a drachm of sulphate of magnesia and 20 grains of sulphate of soda every four hours.

If the cough is at all severe, it should be relieved by the administration of a linctus. When the hemorrhage is profuse, a hypodermic injection should be given immediately, and it may be necessary to repeat it, and to keep the patient in some degree under the influence of the drug for some days. Regarding the employment of hemostatics, the only one from which the author has seen any possible good result is oil of turpentine, which may be tried in 10-minim doses, and also ergotin hypodermically in 1-to 3-grain doses is believed by some to be of value.

VACCINATION: THE DURATION OF IMMUNITY.

The *Lancet* of June 17, 1905, has something to say in regard to this important matter. At the meeting of the *Société Médicale des Hôpitaux* of Paris on May 5 M. Sevestre brought forward some evidence showing that the duration of the immunity after vaccination is shorter than is generally supposed. A child, aged three years, was admitted to the measles pavilion of the Bretonneau Hospital with an eruption which was supposed to be of that disease, but which turned out to be a prodromal rash of variola. All the patients in the pavilion, who numbered twenty-seven, were immediately vaccinated. Three left two days later before the result of the vaccination could be ascertained. Of the twenty-four others, two, aged eleven and thirteen years, showed two and three well-developed vaccination vesicles respectively. The former child had no vaccination scar, and the latter had been unsuccessfully vaccinated in infancy. In addition well-developed vesicles were ob-

tained in two children who had well-marked vaccination scars, and whose ages were two and four years respectively. The child who suffered from variola was only three years old and showed one vaccination cicatrix. Thus out of the twenty-five children one, who showed a vaccination scar, was attacked with variola at the age of three years, and in two others, aged two and four years respectively, vaccination was successfully performed in spite of the existence of well-marked vaccination scars. M. Sevestre therefore concludes that in the case of an epidemic of variola or of exposure to infection from a sporadic case children should be vaccinated, even those only a few years old and showing well-marked vaccination scars.

In the discussion that followed cases were mentioned in which recruits were successfully vaccinated, although the same result had been achieved a short time before. M. Roger stated that he had in 1897 successfully vaccinated six children at ages varying from sixteen months to five years who bore the scars, sometimes multiple, of primary vaccination. M. Joseph Belin mentioned the case of a woman who was successfully vaccinated in infancy and had confluent variola in 1868, at the age of twenty-eight years. In 1870 she had discrete variola. From 1871 to 1881 Professor Brouardel vaccinated her every year successfully.

The allied but distinct question of the duration of the protection against variola conferred by vaccination does not seem to have engaged the attention of the society. It may be pointed out that the Registrar-General's statistics of the smallpox epidemic in London in 1901-02 showed that vaccination affords complete protection against death from smallpox for ten years. But all practitioners will agree as to the wisdom of the advice to revaccinate even young children who have been successfully vaccinated if they are exposed to the infection of variola. Exceptional cases occur, and it is by representing them as the rule that a large part of the anti-vaccination propaganda is carried on. It is noteworthy that the child referred to above who had variola showed only one vaccination scar, and therefore was imperfectly vaccinated.

THE TREATMENT OF APPENDICITIS IN THE PRECARIOUS STAGE.

SHELDON (*American Medicine*, June 24, 1905) defines the precarious stage of appendicitis as that in which the inflammatory process has extended beyond the walls of the appendix, but in which the infection has not been walled off or its progression arrested. These cases have usually been sick from two to five days and show marked general symptoms of toxemia, with local findings that suggest a general peritonitis. The treatment in this stage is not well settled. Sheldon's practice is to operate through a posterior incision. The appendix is reached through Petit's triangle. A vertical incision is made along the outer border of the latissimus dorsi, and extends from the crest of the ilium upward. This exposes the outer border of the quadratus lumborum and the lumbar fascia and aponeurosis of the transversalis, which extend anteriorly from the outer border of the muscle. The second incision is made transversely, close to the iliac crest, through the lumbar fascia and transversalis, exposing the parietal peritoneum directly over the ascending colon and cæcum.

Efficient treatment is obtained, and at the same time the risk of operating through an anterior incision is not incurred. The small intestines are not interfered with, and there is no danger of disseminating infection. To the operation is added the rest treatment with gastric lavage and rectal feeding. Nine patients have been treated by this method in the precarious stage, and all have made a rapid and complete recovery.

THE SURGICAL TREATMENT OF GASTRIC ULCER.

ERDMANN (*American Journal of Surgery*, 1905) believes that surgical intervention is unnecessary in some ulcers of the stomach and duodenum, and that many ulcers are cured by medicinal and dietary means. Recurrent hemorrhages place the patient in the surgical category. The various anatomic and plastic operations afford rest to the diseased area in two ways, namely, when the ulcer is in the cardiac end or body of the stomach the organ is emptied more rapidly and

secures longer rest between meals, and when the ulcer is in the pylorus it is relieved of irritation by the gastric contents. By operation pyloric stenosis and malignancy are obviated to a marked degree. Also in the case of gastric ulcer malignancy may have already set in and can be discovered early only by operation. The author prefers the Finney method of pyloroplasty when pyloroplasty is selected. In perforated ulcers the treatment is distinctly surgical. Sometimes it is advisable to excise the margins of the ulcer, though in other cases suture only is necessary. Drainage has not been used except when food contents of the stomach were liberally found in the peritoneal cavity, or when exudate or adhesions existed in great quantity. Shock is no contraindication to operation.

NASAL POLYPS—NEW FORCEPS FOR REMOVAL.

Polyps which are inaccessible by the snare can be removed by the forceps of LUC (*La Tribune Médicale*, June 3, 1905). The peculiar part of the instrument is the end of the blade, which consists of a flat plate fenestrated and supplied with a fine wire-like ring around the edge. The plates are flat enough to pass deep into the meatus and are of two sizes, 10 and 8 millimeters in diameter respectively. The forceps should be used until all signs of the growth are removed and the bone is exposed. They are also of use in removing necrotic tissue and bone.

EXSTROPHY OF THE BLADDER—RADICAL TREATMENT.

Previous operations have the disadvantage of not preventing the incontinence of urine, or else of exposing the kidneys to the risk of infection by implanting the ureters in the intestine. MUSCATELLO (*Archiv für klinische Chirurgie*, vol. lxxvi, No. 4) attempted to overcome these difficulties by a modification of Maydl's operation.

A lateral anastomosis was made between the upper and lower ends of the sigmoid flexure and the free loop severed at its upper end, which was closed, as was the cut end of the sigmoid. This left an intestinal sac attached only at its lower end. A piece of the bladder wall,

including the mouths of the ureters and having at least one centimeter margin around them, was next dissected free and sewed into a longitudinal incision in the upper part of the free intestinal sac and covered with peritoneum. The free end of this sac may be attached to the colon to prevent kinking. Long rubber tubes should be retained in the ureters during the operation, and the abdominal wound should not be closed entirely, drainage being left for four or five days. The case operated on in this way was entirely successful.

KNEE INJURIES AND HOW TO MANAGE THEM.

DE FOREST WILLARD (*American Medicine*, June 17, 1905), after a full discussion of the various forms of injury to the knee, including sprains, contusions, displacement of semilunar cartilages, loose bodies, sensitive or hysteric joints, blood-clots, and synovitic effusions, offers the following conclusions:

Apparently slight injuries of the knee often prove more lasting and annoying than those of a more positive nature, as fracture or dislocation.

Every injury of the knee should receive careful examination, since laceration of ligaments or of periarticular tissues, or displacement of semilunar cartilages, or of loose bodies, may have occurred. Obscure fractures also are not uncommon.

Every injured knee requires rest during its acute inflammatory stage; rest in bed, fixed dressings, and crutches are needful. Heat and cold are two powerful agents in aborting a threatened inflammation.

Adhesive plaster strapping is of great value in securing partial restraint of a knee and in producing absorption of effusion. Restricting apparatus should be used with discrimination.

Blood-clots in the joints should be removed by incision and flushings.

Effusions, if large, should be removed by aspiration, or incision, followed by weak iodine injections.

Displaced semilunar cartilages should be stitched in position, or removed. Loose cartilaginous bodies should be removed.

Motion is the normal condition of joints, consequently massage and volun-

tary motions should be instituted as soon as the inflammatory stage has passed. Neglect of this precaution may result in a neuromimetic patient and a chronic cripple.

Sensitive neurotic knees should not be mistaken for diseased ones.

Complete primary rest during the inflammatory stage, followed by massage, voluntary and involuntary movements, gymnastic exercises, hot-air treatment, hot and cold douchings, etc., are the best means at our command for preventing ankylosis.

Should ankylosis follow, forcible straightenings, tenotomies, osteotomies, etc., may be required.

FACIAL NEURALGIA—OPERATIVE TREATMENT.

After describing in detail a case in which five resections were performed, each giving temporary relief, PERTHES (*Deutsche Zeitschrift für Chirurgie*, vol. lxxvii, No. 4) goes on to speak of the results of such operations.

All sorts of operations were performed on the above patient, even to partial resection of the Gasserian ganglion. A series of experiments showed that complete resection and excision of the ganglion might be followed by permanent relief, but that regeneration of the ganglion might result from very small fragments. The only operation which was certain was extraction of the nerve from a bony foramen and obstruction of the foramen with a gold plug carefully fitted as in filling teeth. After this operation sensation never returned.

UTERINE CARCINOMA.

CRAIG (*New York Medical Journal*, July, 1905) summarizes an article on this subject with the statement that there is no characteristic first symptom of uterine carcinoma; therefore he believes that the family physician can be most serviceable in educational work. He would have women purged of their fixed idea that no cancer can exist without a perceptible tumor, an offensive, icterous discharge and characteristic wasting and pallor, or a typical form of pain or hemorrhage.

Moreover they should be taught that the normal menopause occurs invariably by sudden cessation of all flow, by a gradual lengthening of the intervals, or by a gradual diminution of the amount until finally the vanishing point is reached. These occurrences should be accompanied by no more than minimal nervous phenomena. Women must be taught that any departure from these three types denotes a lesion which demands intelligent treatment, as much as if not more so than at any other time in life. The habit of prescribing internal medication for irregular flowings at this period without ascertaining their cause by careful physical examination must be condemned. The idea that a postclimacteric leucorrhoea or flowing denotes a survival and re-awakening of sexual activity must be eliminated, and in its place must be shown that such symptoms are usually indicative of local disease.

FRACTURE OF THE PELVIS WITH URETHRAL AND VESICAL INJURY.

After an extensive description of the cases reported and of specimens in museums, STOLPER (*Deutsche Zeitschrift für Chirurgie*, vol. lxxvii, No. 4) gives a long treatise on these injuries and their treatment.

The fracture is generally at or near one of the joints or bony unions, but cannot be spoken of as a dislocation. Frequently there are two parallel fractures, and there is almost always comminution. There is usually extreme shock, followed by inability to stand or even to move the legs, and local tenderness, especially by pressure over the sacrum and anterior iliac spines. Radiographs are generally unsatisfactory.

The treatment of uncomplicated fractures consists in rest flat on the back and avoidance of pressure on the pelvis. Manipulation for adjustment must be used very cautiously. The prognosis is always guarded, and some lameness or deformity generally remains.

Injury of the urethra is shown by escape of blood and by infiltration of urine. In these cases catheterization is dangerous, and even if the catheter should enter the bladder the danger of urinary infiltration and periurethral abscess is not

averted. The only treatment in such cases is immediate operation, and it makes no difference whether urination is free or not. A catheter may be passed before operation to enable the surgeon to find the urethra. The superior anterior part of this should be sewed together if rupture is complete, and a catheter passed through the perineal opening. Small lesions may be closed entirely. Rarely, if the proximal end cannot be found, suprapubic cystotomy may be required. The catheter in the perineal wound should be removed after three days, and a catheter passed daily by the urethra and accompanied by antiseptic lavage.

Vesical injuries are generally intraperitoneal if due to pressure, and extraperitoneal if due to puncture by bony fragments. The diagnosis may be difficult, and in case of doubt pressure on the bladder must be avoided. Catheters must be used with extreme caution, and cystoscopy is of no value and may be dangerous. In doubtful cases cystotomy should be performed. The prognosis should be very guarded, as even if recovery follows permanent vesical trouble may result.

APPENDICOSTOMY AS A CURE FOR AMEBIC DYSENTERY.

PETERSON (*Post-Graduate*, No. 5, 1905) reports the case of a man thirty-six years old suffering from recurrent attacks of dysentery which produced a loss of 35 pounds. Examination of scrapings from the ulcerated spots in the rectum showed the presence of dysenteric amebæ.

The patient was anesthetized with nitrous oxide. The appendix was readily found and drawn through a 1½-inch intermuscular incision; it was about 4 inches long and very favorable for the operation determined on. About half of the mesoappendix was ligated and cut away. The cæcum was anchored to the peritoneum and deep muscles with catgut sutures, care being taken not to constrict the appendix. About 3½ inches of the appendix was allowed to protrude from the abdominal wound at its upper end. The third day the appendix was amputated and irrigations commenced through the appendicostomy wound. Night and morning the colon was flushed out with ice-cold 1:1500 quinine solution.

At noon each day an irrigation of 1:2000 ice-cold nitrate of silver solution was given.

In five weeks the patient gained 15 pounds in weight and was able to eat ordinary food. Moreover the proctoscopic examination showed all the ulcers healed, and no amebæ could be found in the feces. Peterson states that the appendicostomy opening will be kept for several months so that irrigations may be carried on. Later the remaining portion of the appendix will be removed and the wound allowed to close. The leakage from this opening is extremely slight.

STOVAINE.

SINCLAIR (*Journal of Cutaneous Diseases*, July, 1905) notes that the advantages claimed for stovaine are incident to the decided antiseptic and germicidal properties, low cost, and slight toxicity, about one-half that of cocaine. Moreover it is extremely soluble in water, and this solution is not decomposed by boiling temperature. As a result of his personal experience Sinclair concludes that this drug has not the lasting anesthetic properties possessed by cocaine; that it does produce intoxication when injected subcutaneously; that it produces chronic edema and gangrene of the parts into which it is injected in the strength of a two-per-cent solution; and that it interferes with the healing process, extending the time many weeks longer than what is considered an ordinary period.

CALLOUS GASTRIC ULCER—SURGICAL TREATMENT.

After stating that callous ulcer of the stomach rarely yields to medical treatment and constantly threatens the patient's life, BAKES (*Archiv für klinische Chirurgie*, vol. lxxvi, No. 4) states that two operations have been proposed for it, namely, gastroenterostomy and excision. The former of these should rarely be used as it does not remove the danger of perforation, hemorrhage, and malignant metamorphosis. It improves nutrition if the ulcer is in the pylorus. Resection of the ulcer is no more dangerous as an operation, and should always be preferred.

Bakes then describes his technique in ulcers near the pylorus. The operation is begun with local anesthesia; when the abdomen is opened a few whiffs of ether are given; thereafter all procedures are carried on without any anesthetic, there being no pain. His incision begins at the xiphoid cartilage and extends down the middle line. It then cuts obliquely half through the right rectus, and extends vertically through this muscle to the level of the umbilicus. Gastroenterostomy is then performed, and is followed by circular resection of the stomach almost according to Doyen's method. Bakes describes a new clamp to compass the stomach, which he calls the "gastrotrip-tor."

If this method is not applicable, that of Jedlicka is the operation of choice.

FRACTURES—JUSTIFICATION OF EARLY OPERATIVE TREATMENT.

Ordinarily, according to KÖNIG (*Archiv für klinische Chirurgie*, lxxvi, Heft 3), early operation is not justified in fractures near the middle of long bones. When it is simple suture should be used, if it will hold, otherwise an ivory strip should be placed in the canal of the bone and the fractured ends sewed to it. In the femur and tibia it is better to use a short piece of a long bone, inside the canal. Aluminum-bronze wire is the best suture material.

Fractures near joints require it more often. The patella and olecranon always require early operation, as do fractures separating tubercles to which muscles are attached, e.g., the end of the os calcis, the condyles and tuberosities of the humerus and femur, as well as Y and T fractures of these bones. Several fractures in the same limb should be operated on, if it seems likely that the deformity will be marked, after ordinary treatment. Fractures in the shaft of the femur should be wired together, with a bony splint, if the position of fragments is poor at the end of two weeks. Separation of the head of the radius will usually require excision.

Fracture of the upper end of the femur and especially of the neck can only be treated properly by operation, which is especially demanded in young persons. As the head is mainly nourished by the artery in the ligamentum teres it is necessary to

excise it if the latter is torn, otherwise not. It is more important to sew the ligaments and capsule carefully together than to pin the bone. It is necessary to sew the entire circumference of the periosteum and capsular ligament to get a satisfactory union.

AMPUTATION OF PENIS—NEW METHOD.

The aim of the operation described by JANSSEN (*Centralblatt für Chirurgie*, May 20, 1905) is to give a stump which is better than the ordinary one from a cosmetic standpoint. The orifice of the urethra points forward, thus directing the urinary stream away from the body. The method is only applicable to partial amputation.

An oval incision is made around the penis, the flap being above. The dorsal artery and vein are ligated at the base of the flap, and the corpora cavernosa cut through at the same level down to the urethra, which is divided about an inch more distal. The corpora cavernosa are closed by separate perpendicular sutures, so that one horizontal scar results. The urethra is then turned up and sewed to the corpora albuginea, and a transverse slit is made in the base of the dorsal flap opposite its free end. The edges are trimmed, the urethra sewed to the edges of the slit, and the dorsal flap sewed over the end of the penis. The contraction of the scar brings the urethral orifice nearer the end of the stump.

APPENDECTOMY—RECTAL DRAINAGE.

The only striking point in the technique described by CHAPUT (*Presse Médicale*, June 3, 1905) is the suggestion to drain appendiceal abscesses by means of tubes passed through the wall of the rectum or vagina. Collections above the mesentery should be drained through the wound by a rubber tube about $2\frac{1}{2}$ centimeters in diameter. Those below the mesentery pass into the pelvis and must be drained from there through the rectum or vagina.

The operator opens the rectum a finger's length from the anus by cutting down on a pair of forceps introduced into the anus by an assistant. The forceps are pushed through the opening and a large drain placed between the blades and

drawn out from the anus. The drain must be supplied with lateral openings at its intra-abdominal end and should extend 6 to 8 centimeters into the abdomen. It is absolutely essential that there shall be no lateral holes in the part of the tube which is in the rectum, and it should extend 2 to 3 centimeters beyond the anus. The drain should be placed in the vagina if the subject is a female.

LATERAL SECTION OF THE PUBIS INSTEAD OF SYMPHYSEOTOMY.

That section of the pelvis is free from the dangers of symphyseotomy, and that this method is better than that of others, is the claim made by GIGLI (*Presse Médicale*, May 27, 1905), who reports ninety cases treated in this manner by thirty-two persons.

After showing that the poor results of symphyseotomy were due to opening a joint and to wounding large blood-vessels, he describes his operation.

The bone should be divided by a filiform saw inside the orifice of the inguinal canal. Union by first intention took place in every case, and only six deaths occurred—two from causes not due to the operation, two cases operated on in conditions of extreme septicemia, one from chloroform, and one from typhoid fever. The operative mortality is zero.

HYDATID CYSTS OF ABDOMEN—RADICAL OPERATION.

Resection of the cyst wall is proposed by MABIT (*Revue de Chirurgie*, May, 1905) for the treatment of those cysts which are not entirely or almost entirely embedded in the liver or spleen, when capitonnage is preferable. He has had no trouble of any sort in seventeen typical operations. There is no danger of hydatid or bacterial infection of the peritoneum.

The operation is thus described: An incision is made over the most prominent part of the cyst, which is exposed and punctured. After drainage it is incised freely and the mother cyst removed. The internal surface is scrubbed with gauze and washed with a hard stream of boric acid solution, and dried and cleaned carefully. The cyst is then freed from adhesions as much as possible, and all the free

part of its wall resected. A thin layer of liver or spleen may be cut through by thermocautery. The remainder is returned to the peritoneal cavity and the wall closed without drainage.

ARTIFICIAL STERILITY IN THE FEMALE.

An operation is proposed for this purpose by RISSMANN (*Centralblatt für Gynäkologie*, June 10, 1905), which he describes.

Douglas's sac is opened through the vagina and the uterus drawn backward until the tubes are visible. A piece of each tube $1\frac{1}{2}$ to 2 centimeters long is then excised, together with a wedge-shaped piece of uterine tissue around the tube. The wound in the uterus is closed by a double layer of sutures and the womb replaced. The operation is simple and certain.

THE TECHNIQUE OF AN OPERATION FOR ADENOIDS AND ENLARGED TONSILS.

CARLÉ (*Lancet*, May 13, 1905) considers that the operation for adenoid growths and enlarged tonsils is in reality a more complicated surgical procedure than appears to the casual observer. In his method the patient is anesthetized with A. C. E. mixture on a flat table. Any pillow placed beneath the patient's head should be removed before the operation is commenced. The head thus maintains its normal relation to the trunk, upon which it is neither flexed nor extended. The importance of this is pointed out later. The degree of anesthesia should be such that the conjunctival reflex is lost, but not the reflex to light. A gag, preferably Doyen's, is now introduced by the anesthetist and the mouth well opened. The head is steadied, and the surgeon, standing on the right side of his patient, introduces the forefinger of his left hand to depress the tongue, thus bringing into view the soft palate and uvula. A St. Clair Thomson adenoid curette is carefully passed behind the soft palate into the nasopharynx. The handle of the curette is well depressed, so as to cause the cutting edge of the instrument to impinge against the base of the septum. The handle of the curette is carried through a semicircle, considerable pres-

sure being used in making the cutting edge travel across the pharyngeal vault. In the latter part of the stroke so much pressure is not desirable for fear of cutting too deeply into the muscular tissue of the posterior pharyngeal wall. On withdrawing the instrument the mass of adenoid tissue is found in the cage of the instrument. The patient is immediately turned on to his right side, the nurse taking charge of the body and the anesthetist of the head. The tonsils are next removed with a Heath guillotine, the lower or right first. The surgeon defines the tonsil with his left forefinger, introduces the guillotine, and slips the ring over the organ. The handle of the instrument is carried well over to the opposite side, when the blade is pressed home and the tonsil removed. The upper or left is removed in a corresponding manner, the surgeon reversing his grasp of the handle in his right hand. The fauces and post-nasal space are then carefully palpated with the forefinger, and any remaining adenoid tissue detected is removed with a Gottstein curette. The violence of the bleeding is allowed to abate, when the patient is removed to bed in a prone position with the head low, a towel being held to the face during transit to catch any blood.

CANCER OF LARYNX—METHOD OF OPERATION.

The choice of method depends, according to v. NAVRATIL (*Archiv für klinische Chirurgie*, lxxvi, 3), on the position and variety of the neoplasm. In case of doubt a small piece should be excised and examined microscopically. The usual seat is on the vocal cord, and the diagnosis from papilloma and simple catarrh is made by the obstinacy and by the early ankylosis of the cricoarytenoid articulation. Tumors may be divided according to their seat into internal (vocal cords, Morgagni's cyst, subchordal region, anterior commissure) and external (epiglottis, sinus pyriformis, posterior wall). Pathologically the simple squamous is the most frequent and least malignant. The horny squamous and "basal-celled" are less common but more dangerous. Scirrhus, medullary, and cylinder-celled are rare.

If there is only one small spot of squamous cancer and no fixation or other distant signs, it may be removed by the

curette under local anesthesia. If there are no large glands and the cancer is of the internal type and simple squamous, and less than one-third of the larynx is involved, partial excision may be performed and the wound closed without tracheotomy. The larynx should be split from top to bottom, and if a large amount of mucous membrane is removed a flap of skin should be grafted in its place.

Typical complete excision is the usual operation, and is performed as follows: Previous tracheotomy should be done, best a few days before operation. The larynx should first be split from top to bottom (laryngofissure) and the tumor examined carefully. Then the largest vessels should be tied, and after freeing the larynx on the sides the trachea should be cut through and either closed or sewed to the skin. If the esophagus is involved a small piece is removed and the opening in it is closed. Feed by stomach tube or rectum for a week after operation. If the disease is limited to one side, half extirpation may be performed. This operation is indicated in early cases of malignant type and in fairly wide-spread cases of simple squamous.

Operation is generally inadvisable in malignant tumors of external type unless done very early, if considerable involvement of the esophagus is probable (dysphagia), or if there are many large glands or distant metastasis. Malignant cancer of the epiglottis may, however, be attempted.

V. Navratil mentions that he has performed over 100 operations on laryngeal cancer with no immediate deaths.

TREATMENT OF INCONTINENCE OF URINE IN CHILDREN.

NOBLE BARNES (*American Medicine*, June 24, 1905) discusses at length the causes of enuresis and considers the treatment. The majority of cases yield to proper diet, hygiene, and training. Mental and physical irritation should be reduced to the minimum. Regular habits of diet, exercise, sleep, and evacuation of the bowel and bladder are imperative. Children should be taught to hold urine for a considerable time during the day, and should be awakened and made to urinate at a regular hour each night. Sometimes polyuria is associated with an

excessive starchy regimen; a moderate antidiabetic diet relieves the condition. Stimulating foods and drinks and liquids of all kinds should be omitted as much as possible before retiring. In some instances the urine is irritating because of its concentration, and in these cases to limit the liquids would aggravate the enuresis. Medical treatment alone is usually negative unless the enuresis is due to highly acid or irritating urine, or infection and inflammation of the urinary mucosa, in which case lithium salicylate, potassium citrate, and similar drugs give prompt relief. For general atonic conditions of the sphincter, strychnine, quinine, and ergot are of value. Atropine is commonly prescribed, and influences the muscular and reflex activity by lessening the contractile power of the bladder and diminishing the hyperesthesia of the spinal centers. The drug should be given in gradually increasing doses, continuing until the enuresis is controlled or the full action of the drug obtained. The treatment must be pushed for weeks or months, and when a cure is established the dose may be gradually lessened and the drug slowly withdrawn.

CIRCUMCISION.

VAUGHAN (*Journal of the American Medical Association*, June 24, 1905) says that the objections to some of the methods in vogue in circumcision are the difficulty of keeping the wound aseptic, the occurrence of adhesions between the prepuce and glans, the sacrifice of too much skin, and a bad cosmetic effect. The following operation has been performed by him for some years with very satisfactory results:

Attach three hemostats to the margin of the prepuce—one at the frenum, and the other two on the sides at equal distances from each other—and make traction in order to put the inner layer on the stretch; the skin is stretched slightly, if at all. While an assistant holds the parts in this position, that portion of the prepuce which projects beyond the glans is cut off squarely, care being taken—especially in infants—not to cut the glans. The skin is then retracted, and a hood of the inner layer of the prepuce is seen covering the glans about two-thirds of its length. This hood is slit up on the dorsum, with

scissors, back to the cervix glandis, and the corners and sides are trimmed off, leaving from one-eighth to one-quarter inch—enough to sew to the skin. This is done with a fine catgut continuous suture, securing with the suture any bleeding vessels. The blood is then wiped off, the foreskin pulled forward so that it covers the glans for from one-half to two-thirds of its length, and the patient is put to bed. No dressing is necessary.

The advantages of the operation are:

The line of union is beneath the prepuce and is well protected from infection; union usually results without suppuration in from seven to ten days.

No dressing is necessary.

There is little or no danger of adhesion of the prepuce to the glans after this operation, as a fresh portion of skin is folded in on itself in place of the old, perhaps inflamed, and ulcerated portion.

There is no danger of contraction of the preputial orifice.

The glans is left partially covered, as it should be, and plenty of skin is left for adjustment to the varying conditions of the organ.

The cosmetic effect, while it may not be considered important, is all that the most fastidious could desire.

TIME AS AN ELEMENT IN ABDOMINAL SURGERY.

RICHARDSON (*St. Paul Medical Journal*, June, 1905) says that in his experience of the last twenty years he has been impressed by the importance of time in connection with abdominal diseases, not only in respect to the economy of time under certain conditions, but also its wise expenditure under other conditions. After discussing the importance of the time element in diagnosis he considers it in reference to treatment. Important things in operation are to bring the patient to bed alive, to accomplish the purpose for which the operation was undertaken, to determine the condition of the abdominal viscera. The first two of these vary in importance with the character of the case. Sometimes, as in hemorrhage, it is essential to complete the operation even though the patient may die on the table. In other cases the operation dare not be completed in view of the more important consideration of getting the patient to bed alive.

Elliott's two cases of remarkable recovery from gangrene of the intestine, where the operator sutured the ends of the healthy intestine to the abdominal incision after removing the gangrenous loop, finishing the anastomosis later, are cited. In many cases minor steps in the operation, as asepsis and hemostasis, must be made subordinate to the important features of the operation. In the great majority of cases haste is not imperative nor even important. In certain conditions it is not justifiable.

In operations upon the thyroid time is necessary in dissection in order to avoid injury to the recurrent laryngeal nerve, and the same is true in connection with operations in the neighborhood of the ureter. In operations in the region of the pylorus the blood-supply of the transverse colon may be included in a ligature which is passed to extirpate the stomach and pylorus if the ligature is not very carefully introduced. This results in necrosis of the large intestine and death. The intestines may be lacerated in rapid enucleation of pelvic tumors. The period for blind dissections with instruments or the fingers ought to have passed for good, and in their stead should be adopted the anatomical methods of our fathers in the dissection of the neck, the axilla, and the popliteal space. The dangers of anesthesia in prolonged operations should be duly considered.

FAT EMBOLUS AFTER RAPID MOBILIZATION OF ANKYLOSIS.

The statistics and histories of eleven cases are given by BORLE (*Revue Médicale de la Suisse Romande*, April 20, 1905), who adds one of his own.

The accident always followed forcible replacement of contractures in bad position of the knee and ankle, and generally two or more joints were replaced at the same time. Ten of the cases were fatal, peculiarly enough all females, the one who recovered being a male. It is believed by some that the complication is due to status lymphaticus, but it seems more likely that it is due to osteoporosis. This condition is a replacement of bony tissue in the end of the bone by fat, and renders the bone so soft that when replacement is attempted the articular cartilage is forced into the end of the bone and the fat squeezed out.

Borle cautions against this operation in lymphaticus, and believes that a radiograph should always be taken and the operation avoided if this shows softening of the bone near the joint. The operation should be interrupted if the sensation of rupturing tendons and ligaments is replaced by one of elastic yielding.

POSTERIOR URETHRITIS.

After discussing the usual ways of determining whether the deep urethra is inflamed, LEBRETON (*Annales des Maladies des organes Génito-urinaires*, March 15, 1905) describes his own method.

The patient lying on the back and raising the pelvis on the closed fists, the index-finger is introduced into the rectum and the anterior wall of the latter palpated. The prostate gland and the membranous urethra are parts of special interest. Tenderness of the prostate or of the urethra means that the inflammation has reached the posterior urethra.

Lebreton examined in this way 200 cases of gonorrhea at the first time of consultation, and found tenderness in more than two-thirds. He then divided cases into those which showed no tenderness, those which showed tenderness in the median line only, in whom the prostate was not yet involved, those showing diffuse tenderness, and those in whom the tenderness was only lateral, showing that the inflammation of the urethra had passed away.

In cases earlier than seven days 41 per cent showed no tenderness, 14 per cent tenderness in the middle line only, 23 per cent diffuse, and 22 per cent tenderness only over the prostate.

From seven to fourteen days 22½ per cent had no tenderness, 6½ per cent only in middle line, 55 per cent diffuse, and 16 per cent only over lateral lobes. The percentage of diffuse tenderness increases to the end of the first month, when it is 71 per cent, and after this the percentage of lateral tenderness increases.

The percentage of freedom from tenderness is lowest at the third week, when it is only 11 per cent. After this it rises rapidly.

As to prostatic massage, this is indicated if the gland is slightly tender, but not if it is so tender as to suggest suppuration.

It is to be avoided if the gland is not tender, as it may lead to infection. Before massage the bladder should be filled with a large amount of a mild antiseptic, which should be voided immediately after massage to wash away any matter expressed. Perineal incision is the best treatment for prostatic abscess.

THE PERITONEUM: PHYSIOLOGY AND PATHOLOGY.

A series of experiments were made by CLAIRMONT and HABERER (*Archiv für Chirurgie*, Bd. lxxvi, Heft 1). They first determined the influence of various procedures on absorption of potassium iodide. They found that simply opening the abdomen for a short time made a difference in the length of time required for the appearance of the reaction in the urine, as well as in the time before it disappeared. This was marked if the intestines were removed from the peritoneal cavity, and was the more marked the longer the eventration lasted. If the intestines were kept moist by a stream of salt solution during their removal, the delay was not nearly so marked. They next found that the injection of irritants shortly before the injection of the iodide, causing a hyperemia, hastened the absorption, but if the injection was delayed until there were marked signs of inflammation, the absorption was decidedly retarded. The question as to whether peristalsis had an influence on peritoneal absorption they attempted to answer by administering drugs to stimulate this on the one hand and to paralyze it on the other. They found that morphine had a decidedly slowing effect, while physostigmine had an accelerating effect, on absorption. To determine the effect of intra-abdominal pressure, they inflated the peritoneal cavity with air, but found that this had no influence. As bearing on von Recklinghausen's view that the diaphragm is the most important path of absorption, they attempted to exclude this by painting its lower surface with colodion, and found that this delayed absorption more than eventration.

The authors then determined the effect of laparotomy on phagocytosis. They found that the process started sooner than in normal animals, but ceased sooner, and that on the whole the conditions were less favorable after operation than before.

RODENT ULCER TREATED BY RADIUM BROMIDE.

MANBY (*British Medical Journal*, July 1, 1905) reports the case of a man seventy-six years old who had suffered for ten years with a rodent ulcer situated over his right malar bone. He was treated by tying a tube containing 5 milligrammes of radium bromide between the ulcer and a layer of gutta-percha. The treatment was repeated twenty-six times for periods of twenty minutes each. In this period the whole surface was covered with a delicate but natural looking skin. The patient considered himself cured, though there was still a raised nodular inner margin.

The second case suffered for two years from an ulcer on the left side of the face about one inch in diameter. After nineteen applications averaging fifty minutes each the ulcer was so perfectly healed that it was difficult to localize it, the skin looking non-cicatricial.

The third case was also cured.

Reviews.

THE SURGICAL ASSISTANT. By Walter M. Brickner, B.S., M.D. Illustrated. International Journal of Surgery Co., New York, 1905.

This book is designed especially to lighten what the author considers the unmarked and often difficult road that the surgical assistant has to travel. Moreover, the author believes the book will be serviceable to the student preparing for hospital examinations and the hospital interne "embarrassed by the awkwardness of his untutored hands and the slowness of his untrained eye, to the graduate nurse, and to the general practitioner." There is appended to the work a fairly complete, illustrated appendix of the instruments usually found in the hospital tool chest, under each of which is placed the name. Moreover, there is also an appendix containing such important matters as the preliminary preparation and routine treatment of operative cases and the preparation of surgical materials. The richness of this appendix may be judged when it is stated that nine methods of preparing catgut are given in detail. Such methods as hypodermoclysis, intravenous infusion, and skin-grafting are described so thoroughly that the assistant

can readily perform them. Where operations are described each is preceded by a list of the instruments which will be required.

Part I is devoted to the Conduct of the Assistant and His Relations with the Surgeon and the Patient. Much good advice is given. Thus, the assistant is told during the operation to keep his mouth closed and his eyes open. If he makes any suggestion it should be introduced deferentially. Such advice should be learned by heart by every hospital interne. It is stated that the assistant appears most dignified when his bearing is most modest. As to the interne, it is stated that he should possess zeal, thoroughness, and sincerity; cheerfulness, willingness, and punctuality; forethought, breadth, and direction; courage, caution, and kindness.

There will be found through this book much that is useful, and much that is to be found in no other volume on surgery. It would be difficult to improve it either by addition or elimination, and it can be heartily commended to the classes for whom it is written.

THE OFFICE TREATMENT OF RECTAL DISEASES.
By Rufus D. Mason, M.D. Third Edition,
Illustrated. The Burton Co., Minneapolis,
Minn., 1905.

This book is designed for the instruction of physicians who have in their care patients suffering from rectal troubles requiring surgical procedures for their cure, in whom because of their pusillanimity or because of the presence of organic lesions general anesthesia is impracticable. Examination in the left lateral position is advised as far as possible. The knee-chest posture is seldom used by Mason because he finds it uncomfortable and embarrassing, especially to females. Under some circumstances he advises examination in the squatting position.

Mason has found printed slips of advance information extremely useful for patients who purpose coming to him. In these slips the patients are directed to take a good physic two or three days before they come to his office. Two or three compound cathartic pills are suggested as the best means of obtaining free evacuations, followed the ensuing day by a heaping teaspoonful of Rochelle salts. The evening before coming the patient is directed to take one or more injections of hot water to which has been added a

little soap. This slip concludes with the remark: "A little trouble on your part will save you considerable annoyance and possibly a day or more of time, besides being much more pleasant for both of us. Please keep this slip for future reference, if you are not coming now."

The anatomy is dealt with in a somewhat sketchy manner, scarcely adequate to the needs of the surgeon who considers that his main function is to make his patients absolutely and permanently able-bodied. Hemorrhoids are treated by the injection method, using a 50-per-cent carbolic solution in glycerin and water. Mason cautions against injecting piles which are irritated, and states that the strength of the solution should never be less than 25 per cent. It is noteworthy that neither the clamp and cautery operation nor the ligature operation is performed under local anesthesia. Even in fistula with deep and numerous tracts chloroform is advised. For the treatment of fissure orthoform is considered the best application. It is employed in lanolin. This, however, will not cure the ulcer, which must be cut, or the sphincter overstretched. As is usual in books of this nature, there are a large number of prescriptions for the cure of pruritus ani. The book closes with a chapter upon local anesthesia.

Correspondence.

LONDON LETTER.

By GEO. F. STILL, M.A., M.D., F.R.C.P.

The death-rate from phthisis has been under discussion recently at the Epidemiological Society. Dr. Arthur Ransome, whose name is so well known in connection with researches on phthisis, said that this disease is steadily declining in Great Britain, and although the prediction which he made in 1864, that in thirty years phthisis would be practically extinct in this country, has not been fulfilled, he still thinks that by the middle of the present century this consummation will be reached. The decline in the prevalence and mortality of phthisis is due to the spread of enlightenment as to the need of fresh air, pure water, good drainage, and better conditions of food and housing. The rate of decline which had seemed to justify

his hopeful prediction in 1864 had slackened considerably in recent years owing to the rush of the population from the country into the large towns, or that instead of living in the open air as formerly, they passed much of their time in factories, overcrowded slums, public houses, and music halls, places where foul air and dried tuberculous sputum are constant sources of danger. The mortality of phthisis showed curves with more or less periodicity, but the cause of the greater or less incidence was not obvious, and did not appear to be related in any way to meteorological conditions.

Dr. Newsholme criticized these observations as dependent upon the trustworthiness of registration returns several years ago; a criticism which might have been urged with greater persistency, for any one who is familiar with the methods of death certification knows that even with the most modern methods of diagnosis the causes of death are in a large number of cases simply surmised, and statistics based on the registrar-general's returns are worse than useless.

The relation of alcoholism to phthisis was touched upon. It has long been noticed that there is a close relation between these two evils, but it was suggested that the relation is really an indirect one: the man who spends his money on alcohol has less to spend on food, and it is probable that poor food or deficient food is an important predisposing factor in phthisis.

A congress of the Royal Institute of Public Health has been held during the past few days in London, and a round of picnics and garden parties has been interspersed with a series of papers dealing with public health. It may be supposed that some of the latter as well as the former were intended rather as popular entertainment than as scientific work; certainly some of the measures advocated and the statements made could hardly be taken seriously. Sir James Crichton Browne in his opening address dealt with the subject which has attracted so many distinguished thinkers from the time of Cicero downward, if indeed there were not treatises on old age long before the psalmist fixed the limit of man's natural lifetime at three-score years and ten. He said that of recent years there had been a rise in the death-rate amongst men between forty-five and seventy-five, whereas

there had been a fall in the mortality from eighty-five upward. But as a working hypothesis the natural term of a man's life should be fixed at a hundred years, and it was the duty of all to aim at such a lifetime by careful living, a simple and a quiet life. He was prepared to admit that between twenty-five and forty is the period of maximum vigor in life, but it is equally certain that many valuable contributions to knowledge had been made by men long past sixty.

Naturally infantile mortality came in for a large share of discussion. Dr. George Carpenter pointed out that during the past ten years the birth-rate in the United Kingdom has steadily diminished, and that the population would actually have decreased if not supplemented by alien immigration. To compensate for this falling birth-rate it is important that the babies born shall survive and be healthy; and nothing is more important for this object than proper feeding of infants. Seventy-five per cent of the deaths in children under twelve months old occur in those who are hand-fed; the duty of breast-feeding should therefore be impressed upon mothers. At present births need not be registered until six weeks or even later after the infant is born, and consequently by the time the public health authorities are aware of the infant's existence the evil effects of faulty feeding have often already occurred. One municipal body had offered a shilling reward for the earliest information of each birth in its district; in this way it has been possible to instruct the mothers as to the care of the infant within a day or two of its birth, and lady visitors have been appointed to see that these instructions are properly carried out. One speaker advocated new legislation to prohibit the lying advertisements of certain "infant foods" which do so much to increase our infant mortality—a consummation devoutly to be wished, no doubt, but hardly likely to be reached in the present generation.

The use of dried milk was advocated, but evidently with little knowledge of clinical facts in connection with infant feeding. Any one who is familiar with such products, at any rate as they appear in the English market, knows that apart from their scurvy-producing properties they are almost, if not quite invariably, deficient in fat as compared with fresh

milk, and this is a most serious fault in infant feeding.

Some important practical questions of school life were discussed. The age at which schooling should begin was placed by one speaker at three years! by another at five years; and by yet another at seven years. One thing must be abundantly evident to any one who sees much of children in this country, that a great many are sent to school at an age when the same amount of time spent in the open air would be of very much greater value to them in the battle of life than the infinitesimally small amount of mental training which their school attendance supplies at that age.

One gentleman bewailed the gourmandizing habits of these evil days, when men eat more than one meal a day. He quoted precedents from ancient and modern history to show that one meal per diem is ample for the needs of man. The one meal, it may be noted, is to be a vegetarian meal; but even this should not be selected by the low dictates of taste and appetite. In this gentleman's Utopia food is to be merely a physic; it is to be selected only with regard to the chemical constituents necessary to the maintenance of health.

The importance of physical training for schoolchildren was emphasized, and the methods of physical exercise demonstrated. An hour a week has been fixed as the minimum time which is to be devoted to these lessons in elementary schools. A well-timed protest was offered by Dr. George Carpenter to the violent physical exercises which are much in fashion at the present day, and which are often used without any regard to their physiological effects, and sometimes with none but harmful results. There can be little doubt that connected with the use of physical exercises there is a large amount of humbug and quackery.

Another very important detail of school-life which was considered is the time which should be allowed for sleep. Dr. Theodore Acland was of opinion that anything less than eight hours is insufficient for schoolchildren, and he contrasted with this short allowance in some of our public schools the custom in America of allowing at least nine hours. Shorter hours of sleep mean diminished capacity for physical and mental development. Evidently the wisdom of Lord

Chesterfield is out of date, and modern medicine would not approve his letter to his son in 1749, where he says: "Six or at most seven hours sleep is, for a constancy, as much as you or anybody can want; more is only laziness and dozing, and is, I am persuaded, both unwholesome and stupefying."

PARIS LETTER.

By R. H. TURNER, M.D. (PARIS).

The question of infant feeding is one which is very carefully studied in France, and Professor Budin is the one who has done the most to examine this problem from a scientific point of view. In a recent number of the *Presse Médicale* Dr. Terrien writes an article on the subject, especially in connection with premature children, or *débiles*, as they are called. Even mother's milk is not tolerated in some cases, and it is sometimes well to give a small dose of pepsin before each meal. Sometimes it is found necessary to give some vegetable broth, with a very small amount of rice. For the first ten days after birth the quantity of milk given should be rigorously established, and Professor Budin has determined the quantity according to the weight of the child, it being slightly over a fifth of the latter. Of course this rule no longer holds good for a child weighing over six pounds. Very small amounts should be given frequently; such is the rule in these cases, a feed being given every hour. It is sometimes well to give alternately the vegetable broth and then the milk. When the child is not strong enough to take the breast, it is well to feed him with a spoon, and sometimes it is necessary to use a small stomach-tube. If a nurse is taken it is well to keep the child of the nurse, as the child who is weak will not be able to take sufficient milk, and the nurse's milk will cease to come. Sometimes even when the mother is going to nurse the child it is well to have her milk well started by another baby.

In a thesis presented at the Paris Faculty of Medicine Dr. Cazalis has sought to determine the exact duration of pregnancy. The average duration is 275 days after the last period, 270-271 after conception. There are no prolonged pregnancies, a mistake generally having been

made as to the real beginning. The French law allows 300 days, beyond which the paternity can be questioned in cases of divorce, this being one of the reasons why a divorced woman cannot remarry until a year after the divorce has been granted. Amongst the causes which can interrupt pregnancy are sexual relations and fatigue. A woman has therefore the right to refuse sexual relations during this period, and workwomen should be given three months rest before the birth of the child.

The treatment of fungoid mycosis is the subject of an article by Dr. Belot, assistant of Dr. Beclère, in the *Presse Médicale* of April 22. This disease is well-nigh always fatal, but Dr. Belot has been able to obtain most satisfactory results in a case which he treated by the Roentgen rays. After one application of 10 unities H., with rays number 4 or 5 of the radio-chromometer, the pruritus disappeared. Sixteen to twenty days afterward the tumors had diminished noticeably. The treatment was generally applied every fifteen or twenty days, and about 10 unities H. administered. After fifteen months' treatment the cure was pronounced complete, and the patient returned to Canada in October of 1904.

Formic acid as well as its salts has been very much employed of late in France as a tonic, and it has been found most efficacious in certain cases, Professor Huchard amongst others recommending it. Formiate of soda is the salt which is most easily and conveniently administered, and no symptoms of gastric intolerance have been noticed. The following solutions are recommended by the *Presse Médicale*:

Formic acid, 5 grammes;
Orange water, 50 grammes;
Distilled water, q. s. for 500 grammes.

One tablespoonful half an hour before each meal.

Formiate of soda, 10 grammes;
Syrup of bitter oranges, 200 grammes.
Three to four tablespoonfuls a day.

Formiate of soda, 0.05 centigramme;
Powder of nux vomica, 0.01 centigramme;
Glycerophosphate of calcium, 0.05 centigramme;
Extract of cascara, 0.03 centigramme.

For one pill number 30. Two at each meal.

Dr. Moszkowicz, an Austrian physician, has treated three cases of hypertrophy of the prostate by the use of Roentgen rays, a tube being placed within the rectum. Soft tubes were used. After

the second application, which was made every two days, the patient was able to micturate spontaneously, and twelve days after the first application there was no longer any residual urine. In the second case the results, though quite appreciable, were not so excellent. In the third case there was amelioration after the first application.

At a meeting of the Medical Society of the Hospitals, Dr. Sevestre reported the observation of a child three years old who showed signs of vaccination, but who was suffering from smallpox. Dr. Roger, who has made a special study of smallpox, declared he had seen cases of smallpox in patients who had been vaccinated successfully two years and even one year before. In one case only two months elapsed between vaccination and smallpox. He concluded that when there is an epidemic of smallpox every one should be revaccinated.

At a meeting of the Society of Surgery Dr. Chaput presented a woman sixty years old, who was affected with a large cancer of the breast which he did not consider could be operated upon. She went to Dr. Doyen, who made four injections of his serum, and operated on the 3d of December of last year; he then made twenty more injections. After four months the general condition grew worse, and a toxic erythema showed itself on the chest. Dr. Dolbet has also recently sent in his report on the Doyen serum, and in it shows himself distinctly opposed to it.

Dr. Kuster, of Marburg, communicated to the German Society of Surgery the case of an assistant at the Behring Institute who infected his hand with a virulent culture of tetanus. The wound was immediately washed and irrigated with the antitoxic serum, but a few days afterward characteristic contractures of the arm appeared. Dr. Kuster uncovered the large nerves of the axilla, and injected into them the serum. Twelve hours afterward the contracture had completely disappeared. The excellent result obtained by this treatment shows that the infection is carried up the nerves, and that it can be carried very quickly, as Dr. Hertel, of Gratz, described a similar case in which this treatment was carried out in which the symptoms were much more marked, but failed ultimately in its effects, though there was at first some amelioration.

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Original Communications.

TREATMENT OF ACUTE URETHRITIS OF GONORRHEAL ORIGIN.

By H. M. CHRISTIAN, M.D.,

Clinical Professor of Genito-urinary Diseases, Medico-Chirurgical College of Philadelphia.

The possibility of discovering some reliable method whereby gonorrhea could be successfully aborted has for many years stimulated the surgeon, from time to time, to the employment of more or less drastic measures for the attainment of this object. The results of these many experiments in the past have been much disappointment and physical anguish to the patient, to say nothing of the damage done to an untold number of urethras.

As illustrating the length to which surgeons occasionally have gone in their

strenuous efforts to abort gonorrhea, it is only necessary to mention the plan suggested by Boureau, quoted by Taylor in his work on "Venereal Diseases." This surgeon, in all seriousness, advises the introduction into the urethra of a roll of cotton, shaped somewhat like a small lamp wick, which has been previously smeared with vaselin mixed with bichloride of mercury 1:5000. One of the latest and most rational methods proposed is that of Blascho (*Berlin. klin. Woch.*, May, 1902), who advises the use of urethral injections of four- and five-percent protargol solutions. R. W. Taylor suggests a method which he thinks, if applied early enough, may offer a reasonable hope of aborting the disease. It consists in the application, by means of the meatoscope, of a solution of nitrate of silver, fifteen grains to the ounce, on a tuft of cotton wrapped around an applicator

He states that, in case of failure, the acute stage develops with much severity. As a matter of fact, the experience of surgeons who have tried any one or all of the various methods of aborting gonorrhea has shown that the results attained have been unreliable and most disappointing. The chief result accomplished in very many cases has been an almost irreparable injury to the urethral mucous membrane, while in all of them the plan employed to abort the disease has caused a marked inflammatory reaction, thereby increasing the patient's sufferings without materially lessening the duration of the disease. At the writer's hands efforts to abort gonorrhea have hitherto invariably failed, and the patients have subsequently stated that, should they ever be unfortunate enough to again contract the disease, they would infinitely prefer to allow it to pursue its natural course rather than undergo the ordeal of having an attempt made to abort it, which sentiment we presume to be rather a widely spread one.

As is well known, the enterprising chemist has for years been flooding the market with rival synthetic preparations containing varying percentages of free silver, not possessing in strong solutions the irritating properties of nitrate of silver—all of which are good, some are better than others.

Regarding the value of these preparations in aborting gonorrhea the writer says (*Medicine*, January, 1905): "The various synthetic silver compounds put before the profession in the last few years seemed to offer a reasonable chance of aborting the disease, if employed early enough, without causing the urethral irritation produced by the nitrate of silver.

"While not wishing to be considered as too enthusiastic regarding this subject, the writer nevertheless feels assured that in several instances, by the use of some one of these silver compounds, he has been successful in aborting the disease, as seemed to be proven by the fact that within two weeks' time the urine was free from shreds and that the patients were able to resume their daily consumption of 'high balls' without any return of discharge."

The method advocated by Janet, consisting in the injection into the urethra, under pressure, of strong solutions of per-

manganate of potash, was rather extensively employed some few years ago for the purpose of aborting the disease, but it has lately fallen into disfavor, principally on account of the injury inflicted upon the urethral mucous membrane. On the whole the disappointing results obtained from various methods employed to abort gonorrhea would seem to warrant the conclusion that, up to the present time, there has not been found a reliable method of aborting the disease.

In the systematic treatment of gonorrhea one of three methods may be adopted:

1. The exclusive use of remedies internally.

2. Daily urethral irrigation, internal medication being excluded.

3. The use of remedies internally, combined with the employment of urethral hand injections.

As regards the first method suggested I recall a series of eighty cases, reported by me some years ago in the *THERAPEUTIC GAZETTE*, that were treated in this manner. This investigation was prompted by a desire to learn the influence of drugs given internally upon the course of gonorrhea, and also to ascertain the relative value of the anti-blennorrhagic balsams in lessening the urethral discharge. The results obtained showed that the majority of the cases progressed very favorably, as far as diminution in the urethral discharge was concerned, up to a certain point, when the discharge would be mucopurulent in character, with a slightly clouded urine; but beyond this point no further advancement was to be had.

Notwithstanding the assertions to the contrary made by certain genito-urinary surgeons, these experiments demonstrate, at least to my own personal satisfaction, the great value of certain remedies administered internally upon the course of a gonorrhea. Equally patent is the fact that the plan of treatment cannot be relied upon exclusively to cure the affection, and is not, therefore, to be recommended.

Daily Urethral Irrigations.—This method of treatment was enthusiastically taken up some years ago by all genito-urinary surgeons, and is employed by a large number to-day, although it is not as popular as it was some time past.

This plan of treatment, I must confess,

appealed to me very strongly at first, but I abandoned it some time ago as a routine treatment applicable in all cases: (1) Because it is a dirty method, not adapted to the office furnishings of the average general practitioner. A glance at the walls and floors of any dispensary where this plan has been in vogue will, I think, bear me out in this statement. (2) Where daily irrigation is done at the surgeon's office it adds considerable to the expense of the patient, and becomes a luxury only to be indulged in by the well-to-do. (3) Where irrigation is practiced by the patient at his home the dirt and slop produced result in unpleasant inquiries from anxious relatives which may threaten at times to wreck his domestic peace and happiness. (4) Notwithstanding the claims made by the advocates of this line of treatment I have never been able to convince myself, after a rather extensive experience, that it ever produced an actual cure in any less time than any other less objectionable method. As pointed out by Taylor, this mode of treatment appears to rush the patient from the inflammatory stage into the mucous terminal stage; this much accomplished, however, there is no decisive evidence to induce one to believe that the terminal stage is in any way shortened.

The plan of treatment pursued for many years, combining the internal administration of remedies with the employment of hand injections in the urethra, is still the most popular method and one that appeals most strongly to practitioners in general; moreover, the results obtained compare most favorably with any other methods employed. The remedies administered internally comprise diuretics and sedatives, useful in the early inflammatory stage of the disease, such as bicarbonate of potash, acetate of potash, bromide of potash, monobromate of camphor; genito-urinary antiseptic drugs, as urotropin, boric acid, and salol; and anti-blennorrhagic remedies, such as balsam of copaiba and oil of sandalwood, both of which are of great value in the stationary and terminal stages of the disease.

The question as to what is the most valuable drug to employ locally in the early stages of gonorrhea has been oft discussed, and the consensus of opinion seems to have settled upon permanganate of potash and nitrate of silver as the most

valuable. Personally I believe that in many cases, particularly those of a marked inflammatory type, the too early use of urethral injections does more harm than good, increasing the ardor urinæ and chordee and producing premature extension of the disease into the posterior urethra.

The action of permanganate of potash in the treatment of gonorrhea is, I take it, that of a cleansing agent, with little or no specific action upon the microorganism. It is a very old remedy, employed by our forefathers from knowledge gained probably in the bitter and painful school of experience.

Nitrate of silver has come into vogue since the discovery of the gonococcus, and possesses distinct value as a destructive agent against that microorganism. However, it is uncertain in its action, and in solutions of therapeutic strength may prove to be very irritating.

The result of this uncertain action of nitrate of silver on the urethra has been the production of a large number of what Taylor is pleased to call "hybrid" preparations containing silver in varying strength and free from irritating properties.

I cannot agree with that eminent author in styling all these preparations "therapeutic curiosities," several of them, notably protargol, albargin, and argyrol, possessing to my mind great value in the treatment of gonorrhea.

In the early stages of the affection in cases that are not of a severe type, my usual practice is to order one solution of potassium permanganate 1:8000, and a second solution of some one of the silver salts (protargol 1 per cent, albargin 1 per cent, argyrol 5 per cent). The patient is instructed to flush out the urethra three times daily with four syringefuls of the permanganate solution, this being immediately followed by the injection into the urethra of one syringeful of the silver solution, which should be held in the urethra for ten minutes.

Internally during this stage any of the alkaline diuretics mentioned above may be given. Toward the end of the second week the strength of the solutions can be increased, and copaiba and sandalwood at this time, administered internally, will prove of great service.

It should, however, be borne in mind that neither permanganate of potash nor

any of the silver salts can be relied on solely to cure gonorrhea. There develops in the terminal stage of the disease a condition of catarrhal urethritis which requires for its treatment astringent remedies, such as sulphate of zinc, alum, sulphate of copper, tannic acid, etc. A very useful injection at this time is:

Zinc sulph.,
Pulv. alumen, āā gr. xij;
Liq. hydrastis (colorless), f̄ss;
Aq. dest., q. s. §iv.

Solutions of sulphate of copper 1:500, or chloride of zinc 1:500, will be found of considerable value also.

Whatever reflections may be made upon the routine use of irrigations of the urethra in the treatment of gonorrhea, it must be admitted that they have a distinct place when the total urethra becomes involved. When the two-glass test shows the presence of a total urethritis, all hand injections being used by the patient should for the time be discontinued. The whole urethra should be irrigated with a solution of permanganate of potash 1:8000, followed by the instillation into the posterior urethra with a Keyes-Ultzman syringe of some one of the silver solutions. This line of treatment should be carried out by the physician himself, every day if possible, until such time as the second urine shows that the infection is confined solely to the anterior urethra, when it will be proper for the patient to return to the use of some astringent hand injection.

When the posterior urethritis is of a very severe type, as shown by increased urinary frequency, especially if accompanied with terminal hematuria, it is safer not to employ any local urethral treatment whatever, at least for a few days. The internal administration of urotropin and salol, together with the use of suppositories of opium and belladonna, will prove a most satisfactory line of treatment in most of these cases of severe posterior urethritis, until such time as it is deemed proper to institute local treatment.

The treatment of gonorrhea in the clinics under my charge has been along the lines just described, for a number of years; and while the results obtained have not been anything remarkable, they compare very favorably with those obtained from other reliable sources.

THE PERMANENCY OF RESULTS IN PULMONARY TUBERCULOSIS — THE AFTER-HISTORY OF 27 CASES TREATED BY THE COMBINED HYGIENIC, DIETETIC, OPEN-AIR, AND TUBERCULIN TREATMENT.¹

By F. M. POTTINGER, A.M., M.D.,

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A quarter of a century ago there were but few people who believed tuberculosis to be a curable disease. To-day the evidence of its curability is sufficient to convince the most skeptical. When Brehmer founded his sanatorium at Goerbersdorf in 1859 for the purpose of curing tuberculosis, he was laughed at by his associates. They even thought he was insane. To-day, less than fifty years after, there are more than one hundred sanatoria in his native land, and they are springing up everywhere throughout the civilized world. The entire world is being convinced that tuberculosis is curable. Not only is it curable, but it is the most curable of all chronic diseases; and, if it is diagnosed as early as it can be, and if proper treatment is instituted, few, if any, of the serious acute diseases will show a mortality as low.

The question which interests us most in the treatment of tuberculosis is not as to the immediate result, but as to the permanency of such result. A favorable result, if we mean by that a simple improvement, can be obtained in nearly all patients suffering from pulmonary tuberculosis, unless they be *in extremis* when the proper treatment is instituted. Nearly all very early cases can be restored to apparent health, and a large number of those farther advanced can be relieved of all active symptoms. But will this condition, when once attained, be permanent? is the all-important question. Will these patients who have been apparently cured retain their health after they return to their various occupations?

The permanency of results depends upon several things, such as the stage of the disease, the condition of the patient, the thoroughness of the treatment, the in-

¹Read by title at the meeting of the American Climatological Association, at Detroit, Mich., June 29-30, 1905.

telligence with which it has been carried out, and the care exercised by the patient after discharge.

The ultimate, like the immediate, result depends very much upon the earliness or lateness of the treatment. Not only are those suffering from incipient tuberculosis restored to apparent health, but the results should be permanent in most instances. Many individuals, although treated early, suffer relapse because the treatment was not sufficiently

fortunate that it requires so much time to attain a satisfactory result in tuberculosis, but this should not influence our judgment and cause us to dismiss our cases before we are sure of the result. The statistics of some of Germany's sanatoria where only a so-called economic cure was aimed at illustrates this very nicely.

The statistics from the sanatoria of the Imperial Insurance office for 1898-1902 show the following:

TABLE I.

	1898	1899	1900	1901	1902	1903	1904
Of those treated in 1898, the following percentage was able to work in the year designated.....	68	45	38	33	31	...	...
Of those treated in 1899.....	...	67	48	40	35	...	...
Of those treated in 1900.....	66	49	41	...	...
Of those treated in 1901.....	71	55	...	...
Of those treated in 1902.....	74	...	...

thorough. We sometimes hear such expressions as "a three-months' cure." There is no such a thing. The only "cure"

The statistics for the workers on the Prussian-Hessian Railway are as follows:

TABLE II.

	1898	1899	1900	1901	1902	1903	1904
Of those treated in 1898, the following percentage was able to work in the year designated.....	82.08	79.28	63.13	54.88	45.16	45.78	39.17
Of those treated in 1899.....	...	85.69	83.62	72.88	61.02	54.80	49.15
Of those treated in 1900.....	89.28	84.11	72.03	63.64	56.64
Of those treated in 1901.....	89.85	84.40	71.99	62.41
Of those treated in 1902.....	90.74	86.48	74.68
Of those treated in 1903.....	87.05	81.85

that we can recognize is a clinical cure. It may take three months in one case and twelve or twenty-four in another. There is no doubt that many of the cases which are improved could be cured by a prolongation of treatment. Another reason for many relapses is faulty living. Patients return to their homes and occupations and forget the proper way to live. They ignore the fact that they have been ill, and consequently suffer for it.

The resulting scar from a healed tuberculous lesion requires time to strengthen and harden. During this period the patients are most apt to suffer relapses. It is a wise precaution for all these individuals in whom an apparent cure has been attained to be very careful for the two years following treatment. After this time they can have more latitude, but they should always exercise care.

There is one thing that is all-important if we wish to attain permanent results, and that is, to be sure that all removable signs and symptoms have disappeared before the patient is dismissed. It is un-

These tables show a rapid diminution in the ability to work in those who had been dismissed from the institution. This is especially true after the second year, in the second table, but begins at once in the first table. The average time of treatment in these instances was between two and three months. This time is too short. If, instead of a so-called economic cure, a clinical cure has been aimed at, the time of treatment would necessarily have been lengthened, but the results would have been much better, as is shown where a true healing was aimed at.

The following is the condition of 259 patients, who at the time of discharge from Hohenhonnef¹ were in a satisfactory condition; the length of time since discharge is from three to eleven years; eleven of this number cannot be traced. The number whose condition is still satisfactory is 208, or 84 per cent of those

¹Meissen: "Bericht über 208 seit 3-11 Jahren geheilt gebliebene Fälle von Lungentuberkulose." *Zest. f. Tuberkulose und Heilstättenwesen*, Bd. iv, Heft 2, p. 115.

whose whereabouts are known; 40 or 16 per cent grew worse, of whom 9 or 3.6 per cent have died. The time of treatment in these cases varied from 74 to 432 days, and averaged 156.7 days.

Bowditch² reports the work done at Sharon from 1891-1902. In this report 164 cases are considered, of which 79 or 48.17 per cent were "arrested." At the end of this time 12 were dead, but of the remaining 67 "arrested" cases excellent accounts were received, with only one or two exceptions. Thus about 85 per cent of those in whom a satisfactory result had been obtained were still in excellent condition.

Brown³ has made a very interesting report of the cases treated with tuberculin at the Adirondack Cottage Sanitarium, and has incidentally compared them with the total number of cases treated during the time. He compares those who have been treated for tuberculosis and who are still living with the life expectancy for the same ages according to English life tables, and finds a very flattering showing. "One difficulty arises from the fact that a considerable number of cases cannot be traced at all, and the figures accordingly are presented in two ways:

1. By treating all the cases untraced as dead.
2. By eliminating entirely all those untraced.

Both these lead to incorrect results, but in opposite directions. The assumption that all or even a majority of the untraced cases are dead is not borne out by careful investigation of the facts. More especially is this so in cases of females. On the other hand, it appears highly probable that the percentage of dead among the untraced is somewhat higher than among traced cases. As, however, the comparison in these cases is not between the cases treated in this institution and the general public, but between two series of cases treated in the institution, the particular assumption made makes very little difference, and a mean of the

results obtained by the two methods appears a convenient standard of comparison.

The results arrived at by this method of comparison of tuberculin-treated cases and of the total number of cases show a remarkable advantage in favor of the tuberculin-treated cases. During the first three years it was found that of the apparently cured cases treated with tuberculin more are alive than the life table indicates for persons in health. But in each successive year the proportion of tuberculin cases in comparison with the number of healthy people who should be alive grows successively smaller. The cases discharged apparently cured show very much better results than those discharged with their disease arrested. On comparing the tuberculin-treated cases to the total number of cases in the cured and arrested cases, it is found that as more time elapses after discharge the number of tuberculin-treated cases that remain well is greater than the number of total cases that remain well. This is well shown in the last two columns of Table III. These columns show what percentage the percentage of tuberculin-treated cases that remain well is of the percentage of the total number of cases that remain well. It is seen that as the years elapse the percentage increases.

Regarding the time of treatment in these cases, the writer says that in at least two-thirds the treatment lasted more than six months.

These very interesting statistics show that in order to get best immediate results treatment must be prolonged. They also prove that permanency of results depends on the same time factor. If there is one point that should be impressed upon the minds of all who have to do with the treatment of tubercular patients, it is the necessity of prolonging treatment for a sufficient length of time. In no other way can satisfactory results be obtained.

We are sometimes chagrined to be compelled to acknowledge that some of our patients suffer relapse. This is always a disappointment to both patient and physician, but one that cannot always be avoided. However, the efficacy of treatment of tuberculosis is established beyond question by a comparison of the length of life of the treated and untreated.

²Bowditch: "Subsequent Histories of Seventy-nine Arrested Cases of Phthisis Treated at the Sharon Sanitarium from 1891-1902." *Transactions of American Climatological Association*, 1903.

³Brown: "A Study of the Cases of Pulmonary Tuberculosis Treated with Tuberculin at the Adirondack Cottage Sanitarium." *Zeit. f. Tub. und Heilstättenwesen*, Band vi, Heft 3.

Reiche¹ followed the after-history of 683 patients who were denied admission to the sanatoria of the Hanseatic Insurance Company, mostly on account of the process being too far advanced, and compared the length of life with those who were treated in the sanatoria. In the untreated cases the length of life from the first symptoms of the disease until death

was 27 per cent, and that of other diseases was 34 per cent.

Thus the results of treatment of tuberculosis are about as favorable as those for other chronic diseases. It must also be remembered that the main aim of the State Insurance Company's treatment has been what is called an "economic cure." The patients were not treated

TABLE III.

Number of discharge	Apparently cured.		Disease arrested.		Apparently cured.		Disease arrested.		Apparently cured.		Disease arrested.		Column 10 of column	Column 12 of column
	Total. (1)	Tuber- culin. (2)	Total. (3)	Tuber- culin. (4)	Total. (5)	Tuber- culin. (6)	Total (7)	Tuber- culin (8)	Total. (9)	Tuber- culin (10)	Total. (11)	Tuber- culin (12)		
3.....	85	102	88	84	100	102	82	80	83	102	75	86	110	114
4-6.....	74	88	51	75	88	97	87	70	81	95	84	77	117	120
7-9.....	69	88	39	36	99	102	48	44	83	85	44	40	114	91
10-12.....	48	70	12	19	87	98	17	20	68	86	15	19	126	126
Total.....	73	88	52	58	95	98	65	63	84	93	38	60	117	103

Comparison of total and tuberculin cases classified by condition on discharge showing percentage that living are of "Expected living" at various periods subsequent to discharge.

was forty-three months. In those treated in the sanatoria, however, "six to seven years after the first cure 52.7 per cent still remain fully capable of work."

The treatment of tuberculosis makes an excellent showing also when compared with the treatment of other chronic diseases. The statistics of the Imperial Insurance Company² furnish excellent opportunity for comparison. Statistics are at hand of over 100,000 insured, who were treated for chronic diseases during the years 1897-1900. A favorable result was obtained in from 68 to 77 per cent of the cases of pulmonary tuberculosis, and in from 69 to 74 per cent of other diseases. In the second year the condition was satisfactory in 44 to 50 per cent of the tuberculous cases, and also in 44 to 50 per cent of the other cases. In the third year the satisfactory result had declined to 30 to 41 per cent in the tuberculous cases and to 39 to 43 per cent in other cases. In the fourth year, that of tuberculosis was from 30 to 34 per cent, and that of other diseases 36 to 41 per cent. In the fifth year, that of tuberculo-

until clinically cured, but only until they were restored to their earning power. Had a clinical cure been obtained in as many of these cases as was possible, there is no doubt that the showing would have been much better.

Knowing that all statistics bearing on the permanency of results are of value, I venture to add the after-history of 27 cases treated between 1899 and 1903, and reported at the thirty-third annual meeting of the Medical Society of the State of California, Santa Barbara, California, April 21 to 23, 1903.¹ While the number is small, yet I believe the report to be of value. (See Table IV.)

These cases were treated in office practice. No single remedy or measure was relied upon, but I endeavored to use everything that I believed would aid in bringing about the recovery of my patients. Quoting from my original paper: "I believe the rational treatment (of tuberculosis) to be that combination of remedies and measures which best suits each individual case." With the exception of Case I, all patients received a combination of the climatic, hygienic, dietetic, and tuberculin treatment. For the most part they were treated with watery extract of tubercle bacilli (von Ruck).

¹Reiche: "Die Dauererfolge der Heilstättenbehandlung Lungenschwindsüchter" *Münch. med. Woch.*, No. 33, 1902.

²Amtliche Nachrichten der Reichsversicherungsamtes, 1902: Statistik der Heilbehandlung, 1, Beiheft.

¹Pottenger: "The Rational Treatment of Pulmonary Tuberculosis, with Report of Cases." *American Medicine*, Sept. 19, 1903.

TABLE IV.
Stage I (Turban).

CASE NO.— AGE—SEX.	HISTORY	DURATION OF ILLNESS.	TEMPERATURE.		WEIGHT.		BACILLI.		PULMONARY AND GENERAL CONDITION.		REMARKS.	LENGTH OF TREATMENT.	RESULT OF TREATMENT.	POST-DISCHARGE HISTORY.		
			Ad.	Dia.	Ad.	Dia.	Ad.	Dia.	Admission.	Discharge.				How long discharged.	Occupation since discharge.	Present con- dition.
(1) 28 years, male.	Negative.	3 months.	98.6	98.4	135	145	....	....	Infiltration upper right lobe, with fine râles.	Clear, good.	Sputum not ex- amined; tuber- culin test not used.	3½ months.	Apparently cured.	6 years.	Salesman.	Cured.
(2) 10 years, female.	Positive	1 month.	99.6	98.4	71	80	0	0		Clear, good.	Tuberculin test positive.	2½ months.	Apparently cured.	5 years.	Schoolgirl.	Cured.
(5) 34 years, female.	Negative	6 weeks.	99.4	98.4	112	115	0	0		Clear, good.	Tuberculin test positive.	3½ months.	Apparently cured.	4 years.	Teacher.	Cured.
(6) 28 years, female.	Positive.	1 month.	99.	98.6	131	132	0	0		Clear, good.	Tuberculin test positive.	3½ months.	Apparently cured.	4 years.	Housewife.	Cured.
(14) 25 years, male.	Positive.	9 months.	99.2	98.4	121	123	0	0		Clear, good.	Tuberculin test positive.	2 months.	Arrested.	4 years.	Druggist.	Cured.
(21) 32 years, female.	Negative	7 years.	99.6	98.8	110	117	0	0	..... Slight infiltration, with râles both apices; gen- eral condition poor.	Nearly clear, good.	Tuberculin test positive.	2 months.	Apparently cured.	4 years.	Housewife.	Cured.
(22) 29 years, male.	Positive.	6 months.	100	98.5	191	199	+	0	Infiltration right upper lobe, with râles; gen- eral condition fair.	Clear, good.	.....	3 months.	Apparently cured.	8½ years.	Physician.	Cured.
(45) 17 years, male.	Positive.	2 months.	99.8	98.4	130	132	0	0	Infiltration apex, right; fine mucous râles.	Clear, good.	Tuberculin test positive.	3½ months.	Apparently cured.	3 years.	Telegraph operator.	Cured.
(47) 29 years, male	Positive	6 months.	99.4	98.4	160	190	+	0		Clear, good.	Tuberculosis of knee-joint for 20 years.	2 months.	Apparently cured.	3 years.	Barkeeper.	Cured.
(48) 51 years, female.	Positive.	5 months.	99.	98.6	112	117	0	0		Clear, good.	Tuberculin test positive.	6 months.	Apparently cured.	27 months.	Housewife.	Cured.
(63) 22 years, female	Positive.	3 months.	99.	98.4	124	128	0	0	..... Slight condition good Infiltration, with râles right apex; general condition fair.	Clear, good.	Tuberculin test positive.	6 months.	Apparently cured.	26 months.	Housewife.	Cured.
(67) 29 years, female.	Positive.	4 months.	99	98.4	100	115	0	0		Clear, good.	Tuberculin test positive.	4½ months.	Apparently cured.	26 months.	Clerk.	Cured.
<i>Stage II (Turban).</i>																
(12) 22 years, male.	Positive.	18 months.	100	98.4	151	160	+	0	Right upper lobe and left apex infiltrated with râles; general condition poor.	Percussion higher pitched over right upper lobe; expir- ation prolonged; general condition good.	.....	5½ months.	Apparently cured.	46 months.	Clerk.	Cured.
(8) 34 years, female	Positive.	3 months.	99.6	98.4	108	116	0	0	Infiltration lower left	Clear, good.	Tuberculin test positive.	6 months.	Apparently cured.	44 months.	Housewife.	Cured.

(23) 19 years, male.	Positive.	8 months.	99.4	98.4	130	142	0	0	Infiltration right upper lobe, scattered foci in middle and lower; rales throughout; general condition poor.	Clear, good.	Fibroids in upper lobe; good.	Tuberculin test positive.	4½ months.	Apparently cured.	26 months.	Soldier.	Cured.
(24) 43 years, female.	Positive.	6 months.	99	98.4	104	112½	+	0	Infiltration both upper lobes and left lower; with medium rales; general condition poor.	Slight harshness due to fibroids in upper lobe; good.		.....	7 months.	Apparently cured.	33 months.	Housewife.	Cured.
(34) 26 years, female.	Positive.	2 years.	99.5	98.4	99	110	+	0	Infiltration left upper and lower lobes; also right apex, with many small fibroids; lower lobes clear; rales mixed infection; general condition poor.	Carly formed at left apex with some fibroids; lower lobes clear; right nearly clear.		.....	10 months.	Apparently cured.	27 months.	None.	Cured.
(53) 21 years, female.	Positive.	5 months.	101	102	121	128½	+	+	Infiltration left upper and lower lobes; also right apex, with many small fibroids; lower lobes clear; rales mixed infection; general condition poor.	Carly formed at left apex with some fibroids; lower lobes clear; right nearly clear.	Acute tuberculo- sis.	Acute tuberculo- sis.	7 months.	Unimproved.	.....	.....	Died 6 months later.
(54) 30 years, male.	Positive.	2 years.	101	100.6	103	105	+	+	.....	Carly upper right lobe; left upper lobe infiltrated; general condition poor; some bet- ter.	Acute tuberculo- sis.	Acute tuberculo- sis.	4 months.	Unimproved.	.....	.....	Died 6 months later.
(55) 38 years, female.	Positive.	2 years.	99.6	98.6	80	86	+	0	.....	Lungs clear, good.		.....	8 months.	Apparently cured.	27 months.	Housewife.	Cured.
<i>Stage III (Turban).</i>																	
(11) 28 years, male.	Negative.	2 years.	101.4	98.6	139	141	+	+	Improvement in all physical signs; larynx free.			.....	8 months.	Improved.	4½ years.	Traveling salesman.	Still living fair condition.
(25) 19 years, male.	Positive.	2 years.	99.4	98.4	147	158	Not counted		In upper lobe right lung fibroids; rales; septum and tonsils healed.		Tuberculin reac- tion in alveoli; no more thick tuberculous mat- ture.		8 months.	Arrested.	8 years.	Rancher.	Cured.
(26) 17 years, female.	Positive.	33 months.	99	98.4	138	134	+	+	Fibroids in left upper lobe; in-			.....	9 months.	Improved.	.....	.....	Died 3 yrs. after discharge.
(31) 25 years, male.	Positive.	21 months.	100	98.4	125½	159½	+	0				.....	4 months.	Arrested.	29 months.	Clerk.	Cured.

TABLE IV.—Stage III (Tuberc).
(Continued)

CASE NO.— AGE—SEX.	HISTORY.	DURATION OF ILLNESS.	TEMPERATURE.		WEIGHT.		BACILLI.		PULMONARY AND GENERAL CONDITION.		REMARKS.
			Ad.	Dia.	Ad.	Dia.	Ad.	Dia.	Admission.	Discharge.	
(35) 25 years, male	Negative.	7 months.	102	99	118	145	+	+	Entire left lung seat of disease and softening at apex; softening also at right apex; general condition poor.	Right lung nearly clear; fibroid change throughout left; general condition much improved.	.....
(44) 80 years, female.	Negative.	8 years	99	98 6	107½	101	+	+	Right upper lobe almost clear. Left lung cleared very much.	.....	Loss of due to sickness
(68) 21 years, male.	Positive.	2 years	102	99	120	125	+	+	Infiltration in both upper lobes; scattered foci throughout lungs; cavity on level first rib right side; general condition poor.	.....	.....

If we analyze these cases we can draw conclusions which are very interesting. I recognize full well that the number is small, nevertheless it is sufficiently large to be of value as a basis of study. In the first place, it will be noticed that 25 (92.6 per cent) of the patients improved; while in some of these the improvement was only temporary, yet it relieves this dread disease of much of the terror which is attached to it. There is no doubt that some of those who were classed as improved could have had their disease arrested had the time of treatment been prolonged. I believe this result could have been attained in two of those who were classed as third stage.

Of those classed as Stage I, twelve (100 per cent) were apparently cured or had their disease arrested, and remain cured to-day; of those classed as Stage II, six (75 per cent) were apparently cured or had their disease arrested, and remain cured to-day; while of the Stage III cases, two (28.57 per cent) had their disease arrested, and remain well to-day. If we combine the three stages, which is not at all fair, for it gives us no information at all regarding the curability of the disease, yet we have twenty patients, 74 per cent of those treated, apparently cured, or with disease arrested. Of these twenty patients all are living to-day, enjoying good health, and engaged in the active duties of life. In not one instance has there been a relapse, although six years have elapsed since the first one was discharged, and twenty-six months since the last. Thus it appears that a permanent result has been attained in 74 per cent of these cases.

There were seven cases classed as improved. Of these, all are dead but one. Two of these were hopeless from the start, as they were suffering from acute tuberculosis, and another one which was never hopeful developed acute tuberculosis within six months after stopping treatment. The other three followed the natural course of chronic tuberculosis. The third-stage case, which was classed as improved and is still living, has been actively engaged in business since treatment was discontinued over four years ago, and while I have not examined his chest his disease seems to have gone on to an arrested condition.

Of the first-stage cases, bacilli were found in two instances out of twelve; of

the second stage, in six out of eight; and of the third stage, in six out of seven. In one first- and one third-stage case the sputum was not examined, owing to some oversight. In every instance, however, except Case I, the diagnosis was made either by the presence of bacilli or the tuberculin test. I do not doubt that a more careful examination of the sputum would have yielded positive results in several of those cases wherein bacilli were not found.

One of the great disappointments in the treatment of tuberculosis is the slowness with which bacilli disappear from the sputum. Oftentimes our patients seem to look well, and upon physical examination seem almost well, yet a little sputum which is raised occasionally will still show the presence of tubercle bacilli. In my cases bacilli were found in fourteen instances (52 per cent), and they disappeared during the treatment in eight (57 per cent) of those in whom they were found. In every instance where the bacilli disappeared the patient still remains well and free from bacilli. The disappearance of bacilli is a very important matter. Although many individuals in whom this desired end has not been attained during treatment will live and enjoy good health with their disease in an arrested condition, although expectorating bacillus-bearing sputum, nevertheless the patient is in a much safer condition when his tuberculosis is closed. In some instances the bacilli will disappear after treatment has ceased, providing the patient follows out the general plan of treatment as laid down in sanatoria. The following are the results relating to the disappearance of bacilli from the sputum in Turban's sanatorium:³ "Of the 327 patients in whose sputum bacilli had been previously found, 107 or 32.7 per cent are now free from bacilli. Of 197 patients who showed bacilli, both on entrance and discharge, 36 or 18.4 per cent are now free from bacilli, and 58 or 29.4 per cent have a lasting satisfactory result. Of the 116 who showed bacilli on entrance but lost them during treatment, 71 or 61.2 per cent are still bacillus-free, and 82 or 70.5 per cent have a lasting, satisfactory result."

From a study of these cases we can see the necessity of early diagnosis and treatment of tuberculosis. With the advance of the disease the hope of cure grows less, and the time of treatment necessarily lengthens. Of my first-stage cases, 100 per cent were apparently cured or had their disease arrested; of the second-stage, 75 per cent were apparently cured or had their disease arrested; while of the third-stage, this favorable result was obtained only in 28.57 per cent. It must be added that the 100 per cent of apparent cures in the first-stage cases and the 75 per cent in the second-stage cases included all those that came under my observation in these two stages during the period covered by my report, while in order to count 28.57 per cent of arrested cases among the third-stage ones under treatment I was compelled to choose my cases carefully. I only accepted for treatment during this time seven far advanced cases of the many that applied to me. I turned down some whom a greater experience and increased facilities for treatment has taught me to accept. My advanced cases were not easy ones, however. One of those whose disease was arrested had a tuberculous ulcer on the nasal septum and an infiltration of both tonsils, with an ulceration on the right one (the character of these ulcerations was proven by the local tuberculin reaction). Another of the third-stage cases, which is living to-day, had an infiltration of the larynx with slight ulceration of the left cord.

While the greatest chance of cure is in the early stage of the disease, yet these cases prove that the condition of those farther advanced is far from hopeless. Tuberculosis, early or farther advanced, will yield to intelligent, energetic treatment, when carried out for a sufficient length of time, in a surprisingly large percentage of cases. It must be remembered, however, that with the advance of the disease the cure becomes more uncertain, the time of its accomplishment increases, and the danger of relapse becomes greater. The best time to treat tuberculosis is just the same as the best time to treat other diseases—just as soon as we can make the diagnosis.

These cases illustrate in a surprising manner the permanency of the cure in

³Rumpf: "Prognosis of Phthisis." *Therapie der Lungen schwind sucht*, Schroeder and Blumenfeld, p. 489.

tuberculosis. Some men object to the word "cure" being used in connection with tuberculosis. Of course the term should be used guardedly. If we mean by "cure" that the patient will never have the disease again, it is inapplicable. If we mean that all clinical symptoms and all physical signs, save those resulting from the pathological changes, have disappeared, then we can use the word here with as much propriety as in typhoid fever, pneumonia, or a local abscess. To be sure, it would not be wise to speak of a cured case as soon as active symptoms have disappeared, but when, after a patient has been apparently cured for one or two years, he shows no clinical symptoms nor physical signs beyond those dependent on the permanent changes caused in the lung, and fails to react to the tuberculin test, I believe we are justified in speaking of a cure just as much as we are in any other disease. In my cases not a single relapse has occurred in the twenty patients who were apparently cured, or who had their disease arrested at the time of discharge. While time will be the factor to determine the permanency of these results, yet the shortest period since dismissal in any of these cases is twenty-six months and the longest six years. This period is long enough to demonstrate that tuberculosis is not only amenable to treatment, but that the results are permanent if the treatment be thorough.

ARTIFICIAL LEUCOCYTOSIS AS A THERAPEUTIC MEASURE.

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It is a fact well demonstrated that in each and every one of the infectious diseases, with the exceptions of typhoid fever and influenza, there is a leucocytosis, more or less marked in proportion to the severity of the infection. I do not include malaria and tuberculosis under the heading of acute infections. It is to point out the extremely important relation between leucocytosis and the prognosis of diseases caused by bacterial activity, and from that connection to draw some conclusions as to the treatment of these conditions, that this article is written.

First let us inquire whether the increase of leucocytes is a favorable or unfavorable symptom. To decide this question we must ascertain the function of the leucocytes in regard to nature's fight against bacteria. Careful and painstaking laboratory research has fortunately left us no room for doubt on this point. It has been seen that when the system is invaded by bacteria, a very definite course of procedure is pursued by the white cells. The leucocytes first surround the area invaded by the germs. Then occurs a process of disintegration of the polynuclear cells, by which a new substance is set free in the blood serum. This material not only counteracts the bacterial toxin, but exerts such an influence on the germs themselves that the hyaline leucocytes are now capable of ingesting and destroying the virulent organisms.

This being true, our question as to the favorable or unfavorable significance of leucocytosis can have but one answer. For if the leucocytes liberate an antitoxic substance, it follows that the larger the number of leucocytes the greater the amount of antitoxin set free, and so the greater in proportion would be the power of nature to combat infection.

Is the demonstration of the value of leucocytosis confirmed clinically? Most decidedly, yes. It has been shown time and again that little or no increase of leucocytes in the infectious diseases is a very unfavorable indication. This has been noticed particularly in pneumonia. Osler recognizes it when he says in his "Practice," in speaking of the prognosis of pneumonia: "As a rule it may be said that the continuous absence of leucocytosis is unfavorable."

The investigators Tachistovitch and von Jaksch use still more positive language in speaking of this disease. They affirm that "cases of pneumonia in which leucocytosis is absent or but slightly marked are invariably fatal."

While pneumonia may be regarded as a typical infectious disease, it might be objected that it is only one among many, and that from it alone we cannot draw a general conclusion as to the importance of leucocytosis. Fortunately, untiring investigation has covered the entire field of germ-caused disease, and what has been proved true in pneumonia has been found to be the case in all the rest. As

confirmatory of this statement I quote from Delafield and Prudden's Pathology: "In many very severe cases of infectious diseases the initial hypoleucocytosis persists, in which event the disease usually runs an asthenic and fatal course."

If we accept the statement just quoted, we must also believe the converse to be true, viz., that cases in which there is a great increase of leucocytes are the favorable cases.

What are the practical conclusions to be deduced from the above facts? First and foremost is the startling one that if we are able to increase the number of leucocytes to a degree sufficient to produce from them enough antitoxin to combat the bacteria causing the disease, we have then a definite specific for any and all kinds of infection.

Have we any drugs that can cause such an increase? A number are known. Pilocarpine has this action, but is too depressing to be of practical value. Sodium cinnamate is a medicament which increases the number of white corpuscles to more than double their normal number. Nuclein, likewise, has a very powerful leucocyte-increasing action. Dr. Hahn says that with it it is easy to double the number of leucocytes in a short time. Von Mager reports from it an average increase of over 75 per cent in the white cells.

The acceptance of the significance of leucocytosis and the use of drugs for its production will undoubtedly make a vast change in the method of procedure in treating infectious diseases. Formerly we have depended almost entirely on cardiac stimulation and on systemic support with alcohol, combined with elimination through the bowels and kidneys. We have been compelled to leave untouched the bacteria causing the disease. Now, with a better understanding of nature's methods, we will introduce into the system a substance which, by causing the production of bactericidal material, will combat the disease at its very foundation.

Of the various leucocyte-increasing drugs, nuclein is, in my opinion, the most convenient and satisfactory. I wish to state, however, that it must be used hypodermically, as it is decomposed by the gastric juice. I would recommend the five-per-cent solution of nucleinic acid. It may be used in doses of from five to

twenty minims. It is rarely necessary to give more than one dose, if the first dose is sufficiently large. There are absolutely no harmful results. Improvement begins in from six to twelve hours. The patient at the end of that interval sinks into a profound sleep, accompanied usually by a profuse perspiration. Pulse and temperature both decline, and there is marked improvement in every way.

In conclusion I would say that artificial hyperleucocytosis, with all that it means, puts us in possession of one of the most powerful and wide-reaching of life-saving measures. Just how far it may reach cannot at present be fully comprehended. The future alone can unveil its full possibilities.

THE AFTER TREATMENT OF OPERATIVE CASES.¹

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Following an ordinary operation, such, for instance, as the removal of an inflamed appendix not yet complicated by appendicular abscess, providing the patient has been previously healthy, the anesthetic properly administered, and the operation not unduly prolonged, certain phenomena are observed so constantly as to be regarded as normal sequelæ. During recovery from ether unconsciousness there will be some vomiting, which, however, should be neither excessive nor prolonged. For 24 hours there will be a distaste for food. For about the same interval there will often be severe pain. The quantity of urine secreted will be diminished and will often contain a trace of albumen with possibly hyaline casts. This condition is accompanied and followed by harassing backache, referred particularly to the upper lumbar region and not relieved by manipulations or hot applications.

The vomiting should cease in the first six hours, and is only exceptionally repeated after the first twelve. The pain becomes rapidly and progressively better after the first 24 hours, unless a purgative has been given, when it may continue as long again. The backache may last for two or three days and the oli-

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guria as long, though each day should see a decided increase in the quantity of urine secreted. The appetite begins to return at the end of the second day, though exceptionally the patients clamor for food before they are fairly free from ether intoxication. These symptoms may be accentuated or mitigated in accordance with the treatment adopted, and that they are symptoms of pathological conditions and require treatment is beyond dispute.

The primary vomiting is usually regarded as reflex. This simply substitutes a word instead of explaining. Its violence and prolongation are in inverse proportion to the experience of the anesthetist. Its prevention, or at least its occurrence in its mildest form, depends, save in exceptional cases, almost entirely upon the skill with which ether is administered. In hospitals where it is the practice to entrust this function to the junior and inexperienced resident, with the incoming of each fresh enthusiast the surgeon is troubled by one or more cases of persistent and exhausting vomiting. Whatever be the nature of the first few regurgitant efforts following anesthesia, it is almost certain that the persistent vomiting is an expression of toxemia which depends upon either super-saturation of the blood with ether or upon an acute uremia incident to the same cause.

When this vomiting is persistent and intractable there are two potent means of combating it. First, by washing out the stomach for the purpose of freeing it from toxic agents, and second, by stimulating the kidneys to free elimination by rectal injections of a saline solution at body temperature. This should be introduced slowly through a urethral catheter, passed, if practicable, up to the sigmoid, a pint being given every three hours. The injection itself is a direct stimulant to the kidneys, and the absorption of the fluid is a potent factor in increasing the quantity of urine eliminated.

Pain, if so severe as to occasion restlessness, insomnia and exhaustion, should invariably be controlled, and this, in the absence of idiosyncrasy, by a hypodermic of morphine or heroin. From $\frac{1}{8}$ to $\frac{1}{2}$ of a grain is usually sufficient, but since the drug is employed for a specific purpose it should be given in a dose which will accomplish this purpose. Though the exhibition of morphine in surgical

practice is not particularly desirable, its evil effects are infinitely less than those incident to continued exhausting suffering.

The annoying backache which accompanies and follows the true post-operative pain is vaguely referred to the ether, regarded as a necessary consequence of this, and is accorded little consideration; yet it may constitute the major distress from which patients suffer. It is observed after all forms of severe trauma, and is due either to renal congestion or to prolonged dorsal decubitus. When due to renal congestion the normal saline enemata are particularly serviceable. The decubitus pain is best relieved by change in position. In the vast majority of surgical cases, including those subject to intra-abdominal operation, the fixed dorsal position is not only unnecessary but probably distinctly harmful.

The authority of a practitioner which enables him to confine patients to bed after surgical operation for an indefinite period is grossly abused, and the rule should be to get them out at the earliest possible moment. A week in bed is long enough for the ordinary appendix case, and I have had a student out in three days preparing for his examination.

It is customary to open the bowels of patients who have been subject to abdominal operations at the end of the first 24 hours. This is done for the purpose of avoiding intestinal paresis. Where there has been a previous preparation which has embodied a careful emptying of the bowels and the administration of an intestinal antiseptic such as salol or betanaphtholbismuth, this practice is not advisable. Following the traumatism of handling there always develops a slight local peritonitis, which subsides most quickly under rest. Violent purgation under such circumstances seems irrational. Distressing tympany can usually be relieved by the rectal tube or the stomach tube.

At the end of the second or third day a mild purgative should be given, followed by an enema, mainly because persons confined to bed and on a liquid diet become constipated. My personal preference under these circumstances is for castor oil.

The diet of these patients is a matter

which should cause little concern. Where the previous condition has been one of even moderate health it is wise to withhold nourishment till the patient craves it. This may not be for two or three days, much water being given in the meantime to stimulate the action of the kidneys. It is perfectly compatible with health and indeed in many cases would be highly beneficial for the ordinary overfed man or woman to fast absolutely for five days. Where the prejudice of the individual is so strong that fasting for one, two, or three days would not be tolerated clam juice may be given as a highly flavored and almost totally innutritious liquid which appeals vividly to the imagination. When feeding is begun mutton broth properly prepared and milk diluted with an equal part of Vichy or the liquid peptonoids represent the best nutrients.

To briefly summarize the after treatment of an ordinary surgical case:

Vomiting which immediately follows ether if continued for six hours may be treated by 2-grain doses of acetanilid in powder, repeated every half-hour for four doses. This is about as harmless and efficient as any of the various drugs. It may be supplemented by a mustard plaster to the stomach.

If the vomiting continues more than 12 hours and is exhausting the stomach should be washed out.

If after the patient recovers from ether he suffers pain so severe as to cause him to cry out and move restlessly in bed, morphine is given in the smallest dose which will control the pain.

He is encouraged to change his position in bed, is moved from side to side, and is given every three hours a pint of normal saline solution at body temperature by the rectum.

Water is given by the mouth in tablespoonful doses after six hours if the patient complains of great thirst. Even though vomiting continues there is no objection to copious draughts of water, since thus a spontaneous washing out of the stomach may be accomplished.

Food is withheld until the patient feels hungry.

The bowels are opened on the third day, tympany being relieved in the meantime by the rectal tube. The patient is propped up in his bed and gotten into a

chair as soon as this seems compatible with common sense.

Exceptionally, but frequently enough to be considered in the general after treatment of surgical cases, there develop serious complications. Among these the most important are shock and hemorrhage, usually so closely associated as to make differentiation impossible, the major symptom of both being an extremely rapid and feeble pulse. This condition of heart weakness is comparatively frequent after all severe operations, and is as a rule transitory. If in an adult the pulse remains above 144 for more than six hours the condition is distinctly dangerous. After 12 hours the prognosis is bad, and after more than 24 hours nearly but not quite hopeless. Whatever be the cause of this condition, its cure is dependent upon active stimulation supplemented by elimination. Therefore in addition to external heat hot rectal dilute injections are highly important. Of these coffee takes first rank, one pint of this at a temperature of 112° to 116° being thrown into the rectum. The stomach under these circumstances is non-absorbent and extremely prone to acute dilatation. Therefore, unless dilated it should be left alone. In the latter case it should be emptied by the tube, but the danger of reflex cardiac inhibition is always present. As a further means of encouraging elimination, and this is particularly true when copious and rapid hemorrhage has taken place, either hypodermic or intravenous injections of normal salines are indicated. As a direct stimulant strychnia is usually used, though I doubt its efficacy and believe that in the next few years it will cease to be a routine treatment.

As cardiac stimulants both adrenalin and cocaine are clearly indicated and on the basis of physiological study these drugs should take first rank. Neither has absolutely stood the test of clinical experience, possibly because when used it was at such time as to make all remedies unavailing. Oxygen inhalations, at one time highly lauded, are dying a natural death, doubtless due to the fact that there is already in the air a vast superabundance of oxygen unused by the lungs.

Uremia is a condition which exceptionally develops after operation, particularly

in those who have crippled kidneys, and is one which often causes death without being suspected. It may manifest itself in the ordinary form of somnolence and coma, or may be so disguised as to simulate what has been called "delayed shock," the phenomena here being those of cardiac weakness. It is guarded against by previous preparation and treated by intravenous saline injections, enemata, and sweating baths. When the symptoms are atypical an examination of the records showing a small secretion of the urine with inadequate urea elimination may suggest the diagnosis. In extreme cases characterized by anuria splitting of the renal capsule may be indicated.

Acute gastric dilatation is a post-operative condition which is little recognized and which may lead to a fatal result. The major symptom is rapid weak heart action with pronounced dyspnea. With the abdomen swathed in bandages it may remain unsuspected. The circulatory symptoms are due to pressure upon the heart through the diaphragm, and the fact that in some cases there is no vomiting in the early stages adds to the difficulty of a diagnosis. A characteristic sign is the rapid formation of a tympanitic tumor in the epigastric region, extending sometimes downward so that the whole abdomen appears to be filled. The treatment is immediate evacuation of the stomach contents.

Phlebitis is another complication which in intra-abdominal surgery may cause the surgeon the gravest anxiety. It is attended by pain, tenderness, possibly tympany, and usually some rigidity, associated with fever and leucocytosis. It can only be diagnosed by excluding other symptoms and by demonstrating some peripherally thrombosed vessel. I have but once seen this condition proven afterward in the way I have named. It lasted for some weeks and was finally followed by recovery.

Thrombosis of the long saphenous vein, fortunately not frequent, but occasionally encountered after the cleanest kind of abdominal work, is, I believe, best prevented by changing the patient's position and by gentle massage of the extremities.

A CASE OF SATURNINE ENCEPHALOPATHY.

MOSNY and MALLOIZEL in *La Tribune Médicale* of May 6, 1905, report this case, which occurred in a metal worker, aged twenty-five, who was admitted to St. Antoine's Hospital suffering with lead colic.

Five days after admission all the symptoms of colic had subsided, but two days later the patient began to suffer with headache of moderate intensity, and vomiting, which soon became bilious. During the night he did not sleep at all, and on the next day suffered from exceedingly violent headache. He became very stupid, lying with eyes closed, and scarcely replying to questions. Bilious vomiting continued despite absolute milk diet.

There was no rigidity of the neck, no rachialgia, and Kernig's sign was not present. The abdomen was normal, the liver not retracted, the bowel free. There was extreme pallor of the face similar to that which occurs in severe hemorrhage.

This condition continued for twenty-four hours, when the patient seemed to be somewhat brighter.

Improvement gradually took place, and on the thirteenth day after the onset of the complication the patient was practically well.

Blood examination revealed a pronounced anemia, accompanied by an intense leucocytosis, both of which diminished after the crisis was passed. The polymorphonuclear leucocytes predominated.

Albumin was never found in the urine.

Examination of the cerebrospinal fluid revealed an intense lymphocytosis comparable to that occurring in tuberculous meningitis, and which was very persistent, the number of cells being nearly as great at the end of a month as in the beginning of the disease.

The cytologic examination shows, then, that lead is capable of exciting inflammation of the meninges and causing a considerable increase of cellular elements in the cerebrospinal fluid. It is probable, too, that the encephalopathic symptoms are the expression of this condition.

Full details of the interesting case are given.

The Therapeutic Gazette

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SURGICAL AND GENITO-URINARY THERAPEUTICS.

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Leading Articles.

THE USE OF STRYCHNINE AND NITRO-GLYCERIN IN CIRCULATORY DISORDERS.

Readers of the THERAPEUTIC GAZETTE will probably remember that we have, on a number of occasions, called attention to what we believe is the very general abuse of strychnine and nitroglycerin as circulatory stimulants. It is, without doubt, the custom of a large number of practitioners to rely upon strychnine as a stimulant to the heart during the course of the acute infectious diseases, and not only to give it for a few days at a time, but to continue its administration day by day and week by week, with the result that the patient may be benefited during the earlier part of its administration, but soon fails to develop any good effects from its use, and, on the contrary, suffers from a condition of circulatory and nervous irritability which is often taken for a manifestation of the disease. This is particularly true in those diseases which run a long course, and which are apt to be associated with a good deal of nervous

depression, as, for example, typhoid fever and severe influenza. A similar condition is also not rarely met with in children who have suffered from diphtheria and to whom the physician has given large doses of strychnine. There can be no doubt that full or even massive doses of strychnine are exceedingly valuable in their effects in cases of acute circulatory failure, and even in many cases of sub-acute circulatory failure such doses may not only improve the patient's condition but actually save life; this is particularly true of cases of diphtheria, it being the consensus of opinion amongst medical men that massive doses of strychnine are very certainly life-saving when cardiac failure is threatened in that malady. In those instances, however, in which it seems to preserve life, it is questionable whether the circulatory failure is not the result of some functional disturbance added to organic disease, and therefore is but a fleeting condition, for surely no one who is familiar with the effects of the diphtheric poison from the heart muscle can possibly conceive of any drug saving life in those cases in which the heart muscle is materially degenerated.

To sum the matter up in regard to strychnine, it may be said, as it may also be said of all powerful drugs, that used wisely and in proper cases it is an efficient remedy, but that used unwisely it is as capable of doing harm as any other powerful agent, and therefore its use should not be begun, nor should its administration be continued, unless there is some excellent reason for it. When strychnine has been given for a week or ten days, the physician should carefully catechize himself as to whether it is still needed, and as to whether some of the symptoms of rapid pulse and nervous irritability are not due to its use.

A somewhat similar trend of thought may be followed up in regard to nitroglycerin. We have repeatedly pointed out that its common employment by the profession as a circulatory stimulant is based upon an erroneous conception of its physiological action, and when good results have followed its administration in cases of cardiac failure which are not due to high arterial tension, the physician has given credit to the nitroglycerin when in reality the credit should be given to the recuperative powers of the patient.

It is not conceivable that nitroglycerin can be of benefit in lowering the arterial tension of a patient whose blood-vessels are naturally elastic and whose blood-pressure is practically normal, or certainly not above normal, yet as we write this editorial note we read the opinion of a well-known specialist in diseases of children who advises the use of nitroglycerin in infants who may be suffering from circulatory embarrassment due to pneumonia. It is quite true that in some of these cases when the skin is hot and dry the administration of a drug which will relax it, and produce mild diaphoresis, is followed by good results, but the good effects which follow this plan of treatment are due to the equalization of the circulation in various portions of the body and do not depend upon any stimulant effect upon the circulatory or nervous system. Sweet spirit of nitre, which has a physiological action closely allied to nitroglycerin, seems a much better remedy for children of tender years than the more powerful drug to which we have just referred, if any vascular relaxant is needed.

THE INTRAVENOUS INJECTION OF ANTISEPTICS.

Readers of the *Therapeutic Gazette* will recall the fact that several years ago a New York physician strongly urged the intravenous injection of a solution of formaldehyde in conditions of septicemia, particularly that which sometimes complicates the puerperium. We called attention at once to the fact that this method of treatment was much more qualified to produce evil than good results, and suggested that the patients who had recovered after its employment had done so rather in spite of than because of the treatment which had been instituted. Not long after a series of experimental researches were published in which it was proved by observations upon animals that this method of treatment had nothing to commend it and much to condemn it, it being pointed out that the formaldehyde could not be present in sufficient quantities to destroy infecting microorganisms, and not at the same time destroy the protoplasm of the blood-corpuscles and interfere with the other active properties of normal blood serum. Much more recently Guthrie has still further studied the ef-

fects of intravenous injection of formaldehyde upon the hemolytic power of the serum of the dog, injecting 60 cubic centimeters of a one-per-cent solution of formaldehyde in sodium chloride solution into a vessel. Immediately after the injection the decrease in hemolytic power was notable, and was quite distinct fifteen minutes later. In other words, our expressed belief of some years ago is now indorsed, and the injection of this powerful antiseptic substance into the bloodstream interferes with one of its vital properties which we now know to be most valuable in protecting us against infections, although it has only been during the last few years that we have had a knowledge of the existence of this function of the liquid portions of the blood.

THE VALUE OF RECTAL ALIMENTATION.

It is but a short time since we called attention in these columns to an important research carried out by Dr. Edsall, which seemed to show that the value of rectal alimentation was very much less than it is generally supposed to be. At that time we pointed out that the result of Edsall's research was after all about what we would expect if the facts concerning the function of the lower bowel are carefully considered. Even a tyro in physiology knows that it is the upper part of the alimentary canal which is concerned with the digestion and absorption of foods, and that the lower part of the alimentary canal is chiefly concerned in the excreting or expulsion of the residue from which foodstuffs have been abstracted. Indeed, increasing knowledge of the functions of the intestine indicates that a very considerable part of the small bowel is also actively engaged in the elimination of certain substances, and it is well known that the chief absorbent function of the colon is devoted to the abstraction of fluid from its contents.

Our attention has been called to this matter once more by an interesting and somewhat exhaustive bibliographical article contributed to *American Medicine* of July 1, 1905, by Dr. Porter, of New York. He reaches conclusions which are practically identical with those which we have already mentioned. The rectal injection may provide liquid for the system because this part of the intestine can absorb fluid,

and by this means we are enabled to relieve thirst, but it in no way provides materials which will give the body nourishment. As Porter well says, "if the introduction of food into the large intestine could excite a reverse peristalsis and cause the foodstuffs to be carried well up into the small intestine, better results might be obtained." But as the existence of the ileocaecal valve prevents such regurgitation, and as it is practically impossible to force a nutrient enema through the transverse and ascending colon, no hope of the food entering the small intestine can exist.

The practical deduction to be drawn seems to be that physicians who find it necessary to give the stomach rest can relieve the patient of much thirst and provide his tissues and excreting organs with a normal amount of liquid by the use of normal saline injections, and that these saline injections will do as much for the patient as if ordinary nutrient enemata are given, since under the latter conditions the solids which are injected remain in the intestine and are passed with the next stool.

It is of importance that the quantity of salt in these injections shall be accurately measured, because, as is well known to physiologists, the injection of saline solution of greater concentration than that of the blood results in an outpouring of liquid from the tissues until the injected fluid is isotonic with the body fluids. Whereas, if a solution somewhat less concentrated than that of the body fluid is injected, the tissues will absorb liquid and excrete salts until the isotonicity is re-established. The saline solution for rectal injection under no circumstances should be stronger than 60 grains to the pint.

EVIL EFFECTS OF CARBOLIC ACID WHEN LOCALLY APPLIED.

We have more than once called attention in the editorial pages of the THERAPEUTIC GAZETTE to the disastrous effects which sometimes follow the prolonged application of weak solutions of carbolic acid to the fingers and toes. Some years ago Harrington called special attention to this matter, and pointed out that even such weak solutions as two-per-cent carbolic acid in water, if bound around a finger or a toe, might result in gangrene

of the part, whereas very much stronger solutions might be kept in contact with the skin of other portions of the body for long periods of time without deleterious results. When a finger or toe has been subjected to traumatism, and thereby has its vitality diminished, it is by no means an unusual thing to find that it has been dressed with cloths dipped in weak carbolic acid solution, and the very diminution in vitality produced by the injury greatly increases the tendency to gangrenous change.

Our attention has been called to this subject again by an article published by Cotte in *La Presse Médicale* of July 5, 1905. To the condition he gives the name "*gangrene phenique*," and reports a case of a domestic of eighteen years who suffered from gangrene of the right middle finger after applying a weak solution of carbolic acid for several days under the direction of a druggist. The application of the carbolic acid diminished the pain and produced anesthesia, but ultimately caused the gangrenous change. The finger when examined was quite black, and there is no doubt in the opinion of Cotte that the carbolic acid lotion was responsible for its condition. The necrosis was complete, and the gangrene was of the dry type.

Cotte points out that the number of cases of this character which have been reported is now quite numerous. Many years ago Lister insisted upon the danger of these dressings, particularly in children, and Tilaux and Poncet have reported other instances of the same character as long ago as 1872. In 1885 Brun, and in 1893 Bardet, also made communications upon this subject, which was also discussed in 1889 and 1894 by the Paris Society of Surgery. Investigations on this subject have also been made in Germany by Leusser in 1890, Kortüm in 1891, Czerny in 1898, Frankenberger in 1898, and Fisher in 1901. Cotte also quotes Husson as having written on this subject in America, and with characteristic French inaccuracy as to names refers to Harrington as "Harrison." It is a noteworthy fact that all of these reporters have insisted upon the serious character of carbolic acid gangrene. After insignificant injury to a finger it is treated with a carbolic acid solution in water, and then a varying length of time afterward the

gangrenous change takes place; the part becomes yellow, brown, then brownish-black, and finally perfectly black. It is insensible and mummified. A sharp line of demarcation usually develops at the end of two or three weeks without any elevation of temperature, and the necrotic part separates with an irregular line of separation.

The theories as to the causation of this change are various. Kortüm believes that the influence is produced by an action of the drug upon the peripheral cutaneous nerves, or in other words, that the gangrene is the result of a trophoneurosis. Frankenberger, on the other hand, believes that it is due to an influence upon the circulation of the part whereby constriction and thrombosis of the vessels occur; while others, amongst them Harrington, believe that the change takes place in both the nerves and vessels, and in addition that the acid causes coagulation of the albumen in the parts.

Whatever may be the actual pathogenesis of the condition, there can be no doubt that it occurs, and physicians will do well to bear in mind the possibility of the development of this untoward effect of what appears at first sight to be a useful but harmless surgical application.

THE PREVENTION OF NEPHRITIS IN SCARLET FEVER.

Although physicians occasionally meet with instances, or epidemics, of malignant scarlet fever, it has been proved by vast masses of statistics that the disease has far less mortality to-day than it had thirty or forty years ago. The question as to whether it is less frequently followed by complications, to which its existence gives rise, is however debatable. It would seem that while the disease has diminished in virulence from the standpoint of toxicity, it has, on the other hand, permitted a large number of children to survive who have been so severely infected that aural or renal degenerations have taken place which ultimately cause death, and which are not, therefore, included in the statistics showing the mortality of the malady. There can be no doubt that if scarlet fever is recognized in its earliest stage it can, in the average case, be made to run a more moderate course than if it is recognized in its late stages, and careless treatment

is carried out. Absolute rest in bed, avoidance of exposure to cold, careful feeding, and the administration of mild alkaline diuretics with copious draughts of water, will do much toward diminishing the chances of severe inflammation of the kidneys. Cool spongings to allay irritation of the skin, and the use of various sedatives, such as chloral and the bromides, to diminish excessive nervous irritability, are valuable adjuvants to treatment.

We have a number of times within the last few years called attention in the columns of the *GAZETTE* to the fact that an absolute milk diet is by no means essential in every case of nephritis of a sub-acute or a chronic character. But we would not be misunderstood and be thought to advance the idea that an absolute milk diet is not necessary in any case of nephritis, particularly in the acute nephritis due to the infectious diseases. During May, 1905, Zeigler reported the results of his treatment of 218 cases of scarlet fever during a period of fifteen years. During the first half of this period 115 cases were treated in various ways. Half of them developed nephritis, and five of them died, which last figure, by the way, is an interesting illustration of the fact that acute nephritis recovers in the vast majority of cases in children, in sharp distinction from chronic nephritis. Of the remaining cases, 100 received a milk diet, and he asserts that not one of these developed nephritis, but that three others that did not receive milk alone manifested this condition. A number of other specialists in diseases of children have reached similar conclusions, and as milk is taken better by children than by adults, these results seem to us particularly worthy of consideration.

ANTITOXIN INJECTION FOR TETANUS.

To those who have followed the literature of the modern treatment of tetanus it will not be necessary to recall the fact that on the basis of laboratory experiments the profession was cheered by the belief that certainly a preventive and probably a curative antitoxin had been discovered. Following hard upon this there were many clinical reports embodying the results of antitoxin injections, and showing on tabulation an apparently

greatly reduced mortality as compared to that usually recognized as belonging to this disease. On a more careful analysis, however, it was discovered that this apparently lessened mortality was probably due to the fact that there had been a failure upon the part of many observers to realize that tetanus is not necessarily and invariably fatal; that in those cases characterized by prolonged incubation recovery may take place under any treatment; and that antitoxin as a curative medication failed to demonstrate its value. Even with the later discovery that the antitoxin to produce its curative effect upon the neuron must traverse the entire length of the axis cylinder of the terminal nerves involved in the first infection apparently added no value to the application of this method of treatment, since it was apparent that the length of time required for this process to be accomplished would be so great as to make it ineffective when the disease had once clearly manifested itself in a virulent form. Though successful cases have been reported of the injection of nerve trunks, there are practically none such in which there was not a possibility that cure might have followed in the absence of this form of treatment.

Küster's report of the infection of a laboratory assistant is therefore of peculiar importance. This man was a helper in Behring's laboratory, and had twice suffered from cramps, once in 1895 and once in 1897, in consequence of having inhaled the dust of pulverized tetanus toxin. The first attack was characterized by trismus and cephalic tetanus; the second by involvement of the muscles of the chest and belly. He was each time treated by antitoxin injections and recovered in some weeks. In November, 1902, he broke a flask filled with a virulent bouillon culture of tetanus, receiving in consequence a number of cuts in the palm of the right hand, over which the culture broth flowed freely. These wounds were washed out at once with antitoxin, and two and a half hours later the man was given a hypodermic injection of 40 units in the right forearm. This patient experienced pain and swelling in his arm, followed the succeeding day by stiffness of the arm and the right side of the neck. An antitoxin injection was given, but produced no betterment.

The jaw was somewhat set since the patient spoke with difficulty, but on being so ordered he opened and closed his jaw freely. Swallowing was difficult. The axillary plexus was exposed; each separate nerve was drawn out by means of a ligature thrown around it, and was injected by means of a hypodermic syringe until visible swelling of the sheath was seen. A second cut was made above the clavicle and the brachial plexus exposed, and the branches of this were also injected: 10 cubic centimeters in all were employed. The wounds were closed, and the scars of the cuts made by the glass in the palm of the hand were treated by the thermocautery. The stiffness in the back of the neck and the arm disappeared in twelve hours. This patient suffered pain and some paralysis, with muscular atrophy, but ultimately made an almost complete recovery.

The particularly important features of this case are the undoubted virulent tetanic infection; the futility of the immediate treatment of the wounds thus inflicted by the local application of the antitoxin and by hypodermic injections of this same medicament; the steady and rapid progression of the disease, which developing with an incubation period of only five days showed extreme virulence, but which was promptly stopped by intranerve antitoxin injection.

Even on the basis of this one case it seems obligatory in cases of tetanus developing with a short incubation—*i.e.*, those almost inevitably fatal—to reach the nerve of entrance as near its center as possible, and to inject it freely with antitoxin. The fact that in Küster's case there followed a persistent myositis with muscular atrophy and stiffness of the joint shows that the after-effect of this injection must be considered, though it is only fair to recognize the fact that these phenomena have been observed in cases of tetanus which have recovered without injection.

THE THERAPEUTICS OF THE BARBER SHOP.

The occasional report of cases of chancre of the face contracted in a barber shop points to one of the many dangers to which patrons of this institution are exposed, particularly in the absence of

laws and regulations bearing upon the conduct of such shops. In the absence of state or municipal regulations there can be expected at the most simply that superficial and visible cleanliness which is commonly accepted by the public as an assurance against the danger of contagion. As a matter of fact, in even the best regulated shops there are likely to be found ideal conditions for the dissemination of contagion, not merely of the annoying kind as represented by lice, tinea, seborrheic dermatitis, and impetigo contagiosum, but of the serious and even life-threatening kind, such as syphilis, tuberculosis, and even cancer. It is certainly true that a considerable number of cancers of the face owe their beginning to wounds inflicted by the razor.

As facts which are well known to every medical man who deals with skin diseases, most baldness owes its origin to the barber shop directly or indirectly, and from 10 to 25 per cent of the practice of the dermatologist comes from the same source. As to baldness, it seems to be well proven that dandruff is responsible for 90 per cent of all bald heads. Dyer quotes Sabouraud's elaborate experiments, which demonstrate the presence of the bacillus that is responsible for the scaling, and which by its presence in the follicles and fat glands causes shedding of the hair. The organisms develop readily and rapidly in the scalp, the infection is carried by the scales. This seborrheic dermatitis develops at times on the eyebrows, the beard, and other hairy parts of the body. Dyer holds that the brush carries the disease, and each time it is used fresh foci are established. Its beginning at the top of the head is explained by the fact that the average individual brushes hardest in this region.

A man infected in the barber shop carries this infection home; his own brushes then become sources by which the disease is spread. Dyer states that dandruff will develop in seventy-two hours in a healthy scalp. After it has caused destruction of the hair in middle-aged and elderly people the infection may persist in small patches, resulting in excoriations, warts, and superficial ulcers, thus predisposing to a true cancer. Several States and cities have already enacted laws which if carried out afford protection against barber contagion, these having for their end the disinfection

of all steel instruments, thorough cleansing of the barber's hands after treating each client and before treating the next, the sterilizing by heat of cups and brushes, and the prohibiting of such appurtenances as finger-bowls, powder-puffs, or sponges.

Dyer advises the complete elimination of the hair-brush and shaving-brush, and favors liquid rather than cake soap. Persons with diseases of the face, skin, or scalp should not be served, nor should barbers with skin or venereal diseases be employed. There is no suggestion of a substitute for the brush.

In view of the absolute demonstration of the danger of contagion it would seem wise for those averse to prematurely losing their hair to supply their barber with an individual brush and see that he efficiently cleanses it after use. Perhaps one of the most pernicious customs of the ordinary barber shop is the application of a styptic, preferably a stick of alum, to an accidental wound. This is likely to be soiled with the blood of a previous patron, which blood is by no means sterilized by the styptic. In this manner syphilis may be readily conveyed.

Reports on Therapeutic Progress

TUBERCULIN AS A CURATIVE AGENT.

Tuberculous disease is so prevalent that there is practically no department of practice in which the physician or surgeon is not periodically brought face to face with the problem of its amenability to treatment. Unfortunately it has to be admitted, as the outcome of general experience, that though a delay or even arrest of the tuberculous process is frequently achieved, there is still lacking a reliable method of directly attacking the bacillus in the tissues. While it cannot be doubted that the hygienic principles embodied in what is commonly called the open-air method must always form an essential feature in any successful treatment of tuberculosis, it must yet be admitted that the discovery of a specific medication might be expected very largely to increase the percentage of cases in which restoration to health is so complete as to justify the result being designated a cure.

As a direct antidote the tuberculin introduced by Koch some fourteen years ago came nearer solving the problem of cure than any other before or since. In their eagerness and faith many all over the world prematurely arrived at conclusions concerning it which the test of time showed to be, in greater or less degree, fallacious. The extravagant optimism which welcomed the birth of tuberculin was followed by skepticism, ending in a general feeling of disappointment and perhaps unfair depreciation of its actual intrinsic merit.

Since Koch introduced what is now known as his "old" tuberculin, several other tuberculins have been elaborated, either from the secretions or from the bodies of tubercle bacilli. Extended observations, carried out carefully and accurately, go to prove that tuberculins possess distinct value as a specific means of treatment. Wright has demonstrated that by one of them it is possible to increase the defensive properties—the opsonic power—of the blood serum against the bacillus. He has also shown how to gauge the degree of improvement, or the reverse, which is taking place in the patient's condition under the influence of tuberculin medication. Many anti-tuberculous serums have likewise been produced, but though those of Maragliano, Marmorek, and others have attracted some attention, the results so far achieved have been inconclusive and for the most part disappointing.

The discredit which became attached to the original tuberculin of Koch led to its being very generally discarded as dangerous, but some observers who trusted in its efficacy, and by prolonged observation acquired skill and discrimination in its administration, have preserved their belief in its virtues. Among these, Prof. McCall Anderson, of Glasgow University, who has employed it continuously since its discovery, is confirmed in his opinion that in suitable cases and with proper precautions it is not only a safe remedy, but one which, more than any other he has tried, has been productive of striking and lasting improvement. In an address given recently at the annual meeting of the Dermatological Society of Great Britain and Ireland, Professor Anderson gave an interesting and encouraging account of the results which have fol-

lowed his use of the remedy. Many of the cases of cutaneous tuberculosis which he recorded would probably nowadays be satisfactorily treated by Finsen light or x-rays, but there remain other varieties of tuberculous disease which light rays cannot reach, and round which it may be assumed a local reaction takes place similar to that which may be seen with the naked eye around patches of lupus after the injection of tuberculin. A striking case in illustration of this fact was related in the course of the address: a young woman suffering from Addison's disease spontaneously complained, after the third injection of tuberculin, "of pain in both hypochondriac regions, opposite the suprarenal bodies, while the day after the fourth injection she again complained of deep-seated, dull pain in the same situations." Evidence of the great improvement which took place in this patient's condition was afforded by the almost complete disappearance of pigmentation contemporaneously with a notable increase of weight, strength, and activity.

The treatment as carried out by Professor Anderson extends over a period of six or more months. Beginning with an initial dose of from a quarter to a half cubic centimeter of 1-in-1000 solution, the amount is gradually increased according to the constitutional reaction obtained up to as much as one cubic centimeter of pure tuberculin. The injections are repeated every third or fourth day.

The principal objection to "old" tuberculin is the risk which its administration is alleged to involve of lighting up latent foci of disease elsewhere, but in the succession of successful cases presented by Professor Anderson there is no record of any such misadventure, and it can hardly be credited that in all the long series with which he has dealt no single patient had latent mischief in the lungs or other internal organs.

Professor Anderson does not seem to have extended the use of tuberculin to the treatment of pulmonary cases, or if so, he does not deal with them in his address; but his experience is a valuable contribution to the subject of the treatment of tuberculosis. It raises the question whether in the very early history of pulmonary disease—when the bacillus has presumably done nothing more than become established, or in the terminal stages

of cases treated by the open-air method, when improvement is great but actual cure seems incapable of achievement—the judicious use of tuberculin may not yet prove efficient as a means of inducing the development of antibodies in sufficient amount to neutralize completely the toxins which emanate from the tubercle bacilli when these are presumably feeble, either because their numbers are comparatively small or because their virulence has been diminished.

Which of the tuberculins is best adapted to this purpose is not yet ascertained, nor is it certain that some derivative of them, or even some new serum, may not eventually prove the true antidote. Professor Anderson has, however, done well to direct attention to the fact, to which his cases bear eloquent witness, that “old” tuberculin is still a valuable remedy, capable of producing satisfactory and even brilliant results.—*British Medical Journal*, June 24, 1905.

*THE DIETETIC USE OF PREDIGESTED
LEGUME FLOUR, PARTICULARLY IN
ATROPHIC INFANTS; WITH A
STUDY OF ABSORPTION AND
METABOLISM.*

To the issue of the *American Journal of the Medical Sciences* for April, 1905, EDSALL and MILLER contribute a research on this subject. They conclude that bean flour, in which the starch is predigested by means of a diastatic ferment, seems to be well digested and absorbed by infants and adults. An extremely concentrated food may be given in this way in fluid and partially digested form; a 20-per-cent solution, although fluid, is practically equivalent to beefsteak in nutritive value. Its influence upon the digestive tract in infants in the cases studied was usually distinctly favorable, and its influence upon metabolism in infants and adults is at least equal to that of milk. Of fifteen infants treated, one did not gain; one gained rapidly, but had an intercurrent illness, and the flour was stopped; one gained nine ounces, and then almost ceased to gain. The others gained as follows: One, 15 ounces in six days; one, 13 ounces in six days, both continuing after the bean flour gave out; one, 1½ pounds in sixteen days; one, 1½ pounds in twenty-three days; one, 1½

pounds in seventeen days; one, over 2 pounds in four days, and after readmission twelve ounces in eleven days; one, 1½ pounds in twenty days; one, 12 ounces in eleven days; one, 4 ounces in three days (then taken home); one, 1 pound in seven days; one, 1 pound in eight days; one, 1½ pounds in three days. All these were atrophic infants that had previously been stationary or losing. A child of two years that had persistent and very dangerous disturbance of digestion with advanced malnutrition improved immediately, the digestive tract became nearly normal within a few days, and the child repeatedly gained over two pounds a week. The last mentioned child took nothing but bean-flour solution; the infants usually took about 2½ per cent of bean flour in milk modifications.

These results are certainly unusual. They need to be controlled in several ways before any definite conclusions can be drawn from them, but it seems possible that they were due to a special influence of the legume flour on metabolism, and perhaps to a particular influence of the nuclein contained in this flour upon the tissue-building processes.

One point that appears to be of some importance they have definitely determined: it is easily possible to administer in this way as much as 0.75 to 1.0 per cent of proteid, a fact of decided consequence in those common cases in which it is difficult or impossible to administer a proper amount of milk proteid.

It is desirable to test this preparation further in older children and adults who are the subjects of malnutrition. This will necessitate, however, some method of preparing the bean-flour solution by which it can be pleasantly flavored, as when unflavored its taste prevents its use with older patients for any considerable period. Infants, however, take it readily in milk.

PRURITUS ANI, WITH SPECIAL REFERENCE TO ITS LOCAL TREATMENT.

LEWIS H. ADLER states in his experience that the male sex has been affected in about 95 per cent of cases. In nearly all the cases the patients were more or less neurotic, and in the major portion of a decidedly bilious temperament. The cases demand the removal of all exciting

causes, and regulation of patients' habits of life should precede and attend local treatment. The latter consists in the daily injection into the cavity of the rectum of from 1 to 2½ drachms of the following mixture:

Fluid extract hamamelis, 1 fluid-ounce;
Fluid extract ergot, 2 fluidrachms;
Fluid extract hydrastis, 2 fluidrachms;
Tincture benzoin comp., 2 fluidrachms.

Upon the first visit, if the perineal skin is dry and tough, the entire surface should be painted with a concentrated solution of silver nitrate (960 grains to the ounce). This may require repetition several times at intervals of a few days to restore the skin to normal. After this is accomplished the full-strength citrine ointment is to be applied and renewed daily for the first two or three weeks, and thereafter on alternate days or twice a week. This method of treatment may extend over a period of six months or even longer, but in the author's hands it has proved uniformly successful.—*American Medicine*, July 1, 1905.

ATROPINE AND MORPHINE IN CHLOROFORM ANESTHESIA.

TUFFIER, of Paris, in *La Presse Médicale* of May 3, 1905, says he has abandoned the use of an injection of morphine and atropine as a preliminary to the administration of chloroform.

Although laboratory experiments have proved that the use of these drugs in dogs has greatly reduced the mortality from chloroform, the difference between these experimental results and clinical results has induced Tuffier not to employ the drugs in man.

He summarizes the disadvantages as follows: Before operation the effect is often variable. While it is true that most patients experience the nervous sedation which it is intended to produce, there are some in whom it is not produced; moreover, despite the theoretical opposition in the action of the two drugs, vomiting occasionally followed their injection. During operation the patients showed signs of profound adynamia, their condition resembling coma rather than sleep. It was notable that only a small quantity of chloroform, not more than two or three grammes, was required to produce this

profound anesthesia. In two cases sleep persisted for an hour and a half after the operation was completed, and it was largely due to the occurrence of this phenomenon that Tuffier was led to give up the use of the drugs.

HIGH ARTERIAL BLOOD-PRESSURE: ITS RESULTS AND PREVENTION.

As one of the ablest of London practitioners ROLLESTON writes in the *Clinical Journal* of June 21, 1905, on this subject. He says that having determined the presence of high arterial tension in ourselves or our patients—and this may be looked for after forty years of age—the important question of its removal and prevention now concerns us. In the first place the causes of high tension must be considered, and as far as may be counteracted in any given case. The general conditions of life should be made as simple and healthy as possible, so as to realize the ideal of *mens sana in corpore sano*. Moderation in food is important; as the years advance—it is probably not too early to start at forty—the amount should be gradually and slightly diminished. The time for “doing one's self well,” if, indeed, it ever existed, has gone by. The quantity required by individuals varies greatly, and it is impossible to make any hard and fast rule, but probably one should stop just short of complete satisfaction. Without becoming vegetarian, the diet should be less proteid and relatively more carbohydrate in character. Mastication should be thorough, since Chittenden has shown that a smaller amount of proteid food than was formerly considered necessary for the needs of the body is then required. Total abstinence or extreme moderation in alcoholic drinks should be insured.

Exercise without excessive effort is most important as a means of preventing high tension; it has, indeed, been found by Prof. Clifford Allbutt that the blood-pressure of athletic men at Cambridge and elsewhere ranges low. Exercise leads to a dilatation of the intramuscular vessels, and so diminishes the peripheral resistance. It is true that at the moment of muscular effort the blood-pressure rises temporarily, but the mean result of exercise is to lower the intra-arterial pressure. The exercise should be taken regularly, and, if possible, in the open air; if this

is not convenient, breathing exercises can always be carried out when getting up in the morning and before going to bed. In short, one cannot help feeling that the essentials of diet and exercise necessary to prevent the onset of high blood-pressure are included in "jiu-jitsu," the Japanese system of diet, exercise, and general mode of life. Passive exercise, or massage to the muscles of the limbs, lowers blood-pressure, and may be useful under certain conditions. It should be remembered, however, that superficial massage raises the arterial pressure. A free action of the skin, such as is obtained by active exercise, is important, and when the natural method is difficult may be effected by Turkish and other kinds of baths, which in addition dilate the peripheral vessels and so lower the blood-pressure. Constipation and indigestion should be prevented by attention to diet and exercise, or, if necessary, by drugs; but care and moderation in diet should do much to prevent these alimentary disturbances. Of the importance of avoiding worry, anxiety, and strain it is hardly necessary to speak further; but we must remember that it is not work, but the worry and rush which often accompanies it, that tells.

The reduction of blood-pressure by the use of medicinal means is a difficult matter; for, on the one hand, the number of drugs really effective in this direction is not large, and, on the other hand, a too sudden reduction of blood-pressure may have definite harmful results. Thus the writer has seen irregularity of the pulse and cardiac failure follow and apparently be directly due to reduction of arterial pressure, from 220 to 110 millimeters of mercury, by the use of tincture of aconite, 5 minims for five doses. Of the vasodilators, nitrite of amyl has a marked but transient action, and for the more persistent effect required nitrite of soda, liquor trinitrini, and allied drugs have been much in vogue. It is highly probable that the rather disappointing results obtained in the attempt to bring the blood-pressure down depend on insufficient doses being given. The official dose of nitrite of soda is 1 to 2 grains, but Nichol speaks of $1\frac{1}{2}$ to 5 grains, often repeated. Observations with the sphygmomanometer show that liquor trinitrini has no effect on pathological blood-pressure, at any rate in the ordinary doses employed, and on

this account Loomis has given up using it for this purpose. It should be given in much larger doses, up to 10 minims, as recommended by Osler. Erythrol tetranitrate is said to have less effect than liquor trinitrini. Iodides are very commonly employed to bring down blood tension, but it seems proved that when given to man in ordinary doses they have no depressing effect on the heart or blood-pressure (Stockman and Charteris). It is, of course, conceivable that iodides may stimulate the thyroid gland to increased activity, and that the large supply of its internal secretion thus brought about may eventually reduce blood-pressure. In this connection it may be pointed out that it would be reasonable to give thyroid in small doses to keep down the gradually rising blood-pressure of later life.

Tincture of aconite will reduce blood-pressure, but it must be used cautiously, as its effects may do serious harm.

Chloral hydrate in 5-grain doses every four hours is strongly recommended by Loomis, who has given up liquor trinitrini in its favor.

Salines and small doses of mercurials are useful in inhibiting intestinal putrefaction and fermentation, and so in preventing the formation of poisons, which, when absorbed, constrict the vessels and lead to heightened pressure.

THE ACTION OF MARETINE ON THE FEVER OF PHTHISIS.

RENON and VERLIAC in the *Journal des Praticiens* of March 4, 1905, have employed maretine, which is carbominate or meta-tolyhydrazide, in the treatment of the fever of phthisis.

Before beginning its use, the patients were placed at rest for at least a week, and the ordinary dietetic and therapeutic measures instituted, so that there could be no chance of error. Maretine was then administered in the dose of 25 centigrammes to men and 15 to 20 centigrammes to women, two doses being taken each day, one at 11 A.M. and the other at 3 P.M.

In all the cases its administration was followed by modification of the temperature curve. In a single case no decided fall was produced, but the temperature assumed the inverse type. In all the other cases a sharp fall in temperature, varying from one to one and one-half degrees, and

not accompanied by sweating or any unpleasant symptoms, was experienced the first evening. In the majority of cases the fall was progressive, the curve being maintained for twelve or fifteen days at a level of one or two degrees lower than it was originally. In all cases it reassumed its original height when the drug was discontinued.

In four cases diarrhea was observed, in two of which it seemed to be directly due to the use of the drug, subsiding after its withdrawal.

In the dose of 50 centigrammes a day maretine passes into the urine and colors it yellow; the urine always reduces Fehling's solution. In the dose of 40 centigrammes this reduction is not constant.

TWO CASES OF ACUTE OXALIC POISONING.

FILIPPI (*Lo Sperimentale*, lix, 1; *La Tribune Médicale*, April 29, 1905) reports two cases of acute poisoning by oxalic acid. In one case the salt was used by mistake for boric acid in the preparation of fluid for colonic irrigation. In the second case it was taken accidentally for Epsom salt.

In the latter case an autopsy was obtained. The stomach contained sanguinolent fluid; the mucosa showed patches of ecchymosis, but no ulcerations. The intestinal mucous membrane was somewhat congested, and there was slight edema of the brain.

Microscopic examination of the viscera revealed nothing characteristic.

In view of the failure of both macroscopic and microscopic examination an attempt was made to isolate oxalic acid from the digestive tract and neighboring organs. Specimens were dried over a water-bath and treated with absolute alcohol. After twenty-eight hours of maceration by heat the alcohol was poured off and its residue evaporated. The tissue was then placed successively in alkaline water and dilute hydrochloric acid, and a liquor and an extract obtained with each, in which an endeavor was made to find oxalic acid.

This experiment was successful, a trace of the poison being found in the liver, a small quantity in the bladder and kidney, a notable quantity in the intestines, and a relatively large amount in the stomach.

THE TREATMENT OF ACNE BY A NEW OPERATIVE PROCEDURE.

KROMAYER, of Berlin, in the *Münchener medicinische Wochenschrift* of May 16, 1905, advocates the use of a fine, sharp, cylindrical punch operated either by electricity or the dental engine in the treatment of acne, asserting that it affords a certain as well as rapid and agreeable method for the prevention of the development of comedones in follicles predisposed to disease, that it aborts beginning pimples, and speedily cures those already developed.

The advantages of the method are its simplicity, its painlessness, and the rapidity with which healing takes place.

The technique is very simple, the revolving knife being plunged into the lesion as deep as the subcutaneous connective tissue, and the minute cylinder of tissue which it cuts out removed with forceps. The small canal thus formed secures adequate drainage when pus has formed, and furthers resorption in old chronic acne lesions which have long been subject to relapse.

The pain produced is not greater than that caused by puncture with a sharp needle. After a few hours inflammatory action subsides, and it has often happened that patients who were operated on in the morning have gone into company in the evening, so slight are the marks left by the instrument. The scar formed is so minute that it cannot be detected.

THE TREATMENT OF HAY-FEVER.

DENKER, of Erlanger, in the *Münchener medicinische Wochenschrift* of May 9, 1905, states that in his opinion the toxin isolated from gramineous plants by Dunbar is not always the specific cause of hay-fever. He tried the toxin upon three persons known to have suffered with hay-fever for years, and none of them developed the disease. A control subject also failed to react.

As to the therapeutic action of the anti-toxin very favorable results have been obtained. Of the cases treated by Lubbert and Prausnitz 57 per cent were cured, 32 per cent relieved, and 11 per cent remained uninfluenced. Denker, however, is of the opinion that the action is fleeting, so that it has to be used very frequently.

It is also necessary for the patient to avoid sleeping with open windows.

The author has found massage of the nasal mucosa, preceded by an application of cocaine and adrenalin to reduce sensibility, to be very effective both in relieving and preventing recurrence of hay-fever.

Massage is administered by means of an applicator wound with cotton and dipped in a 1:10 solution of eucrophenol. The lower and middle turbinates, the septum, and if possible the superior turbinates, are treated. Each nostril is massaged from two to four minutes, treatment being given daily. Eight cases are reported.

PICRIC ACID IN THE TREATMENT OF ECZEMA.

OTTO MAYER, of Strassburg, in the *Therapeutische Monatshefte* for May, 1905, reports the results obtained in Wolff's clinic with picric acid in the treatment of eczema. The cases comprised acute moist forms, chronic forms affecting the legs and hands, and the impetiginous forms confined to the heads of children. A small number of other skin diseases complicated by eczema were also treated.

In most cases the acid was incorporated with zinc and starch paste in the strength of one-half to one per cent, local baths being employed only in a few cases of hand eczema.

Generally a decided improvement was observed after two or three applications. The secretion diminished and the formation of epidermis soon took place.

Cases of seborrheic eczema which had resisted ordinary methods of treatment were so modified that they were readily cured by further medication. In these cases it was found necessary to resort to the use of tar or similar substances to complete the cure after a dry surface had been obtained.

No constitutional disturbances due to absorption of the drug were observed. Several times, however, local inflammatory reaction followed primary improvement, but as the same condition was observed after the use of other ointments it was attributed rather to the fat than the acid.

A complete bibliography is appended to the article.

A CASE OF VERONAL POISONING.

HELD, in the *Journal de Pharmacie et Chirurgie* of February 16, 1905, and *La Tribune Médicale* of April 29, 1905, reports the case of a woman who took 9 grammes of veronal with suicidal intent. She was found several hours afterward in profound stupor, and was removed to the hospital after her stomach had been washed out.

The patient slept very soundly. Her respiration was labored and she could not be aroused by talking, although painful irritation caused her to groan, and also produced contraction of the facial muscles and movements of the extremities. On the following day the head became bent backward, and convulsions resembling those of tetanus, although much less severe, supervened. Blisters about the size of a bean appeared on the joints of the fingers. The urine, drawn with a catheter, was alkaline, but contained no pathological elements.

At the end of four days the patient complained of nothing but pain at the nape of the neck.

Treatment consisted of tepid baths followed by cold affusions. Nutritive enemata were given because deglutition was difficult.

SCABIES.

In the *Boston Medical and Surgical Journal* of June 22, 1905, HOWE after discussing the subject of scabies in general adds that the treatment of the disease is fortunately an easy and simple one, and a cure is quickly effected. The patient should on retiring take a hot bath and scrub himself thoroughly with soap and water. After the body is dried, an ointment, consisting of beta-naphthol 3j, flowers of sulphur 3ij, balsam of Peru and vaselin aa 3j, should be rubbed thoroughly into all the affected parts. This process, omitting the bath, is to be followed on the two succeeding nights. If this is thoroughly done the patient should be cured. In infants and persons with delicate skins prone to dermatitis and eczema, balsam of Peru is very effective and less irritating than the ointment before recommended.

The writer also calls our attention to the overtreatment of these cases. Irritability and more or less marked pruritus

nearly always follow the treatment for scabies for a few days. In their ignorance of the fact, both the patient and the physician often continue the treatment for scabies after a real cure has been effected. This simply adds fuel to the fire, as it were, and large areas of acute dermatitis and even eczema take the place of the original disease. For this reason, after three days of treatment for scabies, the author advises the use of mild, soothing lotions or ointments. If at the end of a week pruritus continues and increases, the original infection has probably not been cured, and another three nights of treatment for scabies may be necessary. The clothing of those affected should be boiled or baked, and every member of a family with the disease must be cured or the trouble may keep on indefinitely. When the laity have come in many instances to recognize this disease, does it not seem a sad commentary on our profession that so many of our members fail to recognize it, and having recognized it fail to treat it properly?

CLINICAL EXPERIENCE WITH ANTI-TOXIN, AND THE ADVANTAGES OF LARGE DOSES.

To the *New York Medical Journal* of June 24, 1905, FISCHER contributes a paper in which he asks the question, What is the proper dose of antitoxin? The answer is: that dose of antitoxin which will inhibit the extension of the pseudomembrane, subdue the fever, and check the progress of the disease in general. For a mild case of diphtheria from 2500 to 5000 units should be given. If there is no improvement noted in twelve hours, and the exudate, temperature, and pulse remain the same, then another dose of 2500 to 5000 units should be given. If there is a large exudate on the tonsils and pharynx and the cervical glands are enlarged, then it is safer to inject 5000 to 10,000 units on the first day of illness. If no improvement is noted repeat this dose in twelve hours. The same dose should be repeated from day to day until all visible exudate has disappeared, the glandular swelling subsided, and the fever, if present, reduced to normal.

The condition and not the age of the child should be the guide as to the dosage. A toxemia in a young infant is absolutely

identical with the toxemia of an older child.

To produce effects with belladonna we know that it must be pushed until its physiological effect is manifested. The same is true with antitoxin. To produce results give enough.

Idiosyncrasies.—The author states he has never seen a case that showed ill effects from large doses of antitoxin; on the contrary the blood serum, if anything, acted as a nutrient and restored the devitalized system.

Croup Cases.—When we are dealing with laryngeal stenosis due to diphtheria, then the first injection of antitoxin should be at least 10,000 units. It is surprising to see how quickly the system responds in many cases. Exfoliation of membrane can be noted as early as twenty-four hours; in other cases it takes forty-eight hours or seventy-two hours. This exfoliation necessitates earlier extubation than formerly, and the writer has seen patients who, when extubated forty-eight hours after sufficient antitoxin was injected, could breathe without recurring stenosis.

He does not wish to infer that all cases can be extubated after forty-eight hours and remain cured, but he has seen cases that were extubated to relieve exfoliated pseudomembrane and the child got along without further tubing.

Nasal Cases.—The worst cases of diphtheria and the most fatal are frequently nasal cases. Excellent results have been obtained at the Willard Parker Hospital when large doses of antitoxin were used. Septic and nasal cases require the same dosage as laryngeal cases.

What can be gained by giving enough antitoxin to neutralize the toxin present in the system? First, we can limit the disease, and prevent the extension of the pseudomembrane into the posterior nares or downward into the larynx or bronchi; we can by this means prevent the most dreaded and most frequent fatal complication, namely, bronchopneumonia. Secondly, by neutralizing the toxin we prevent degenerative complications, such as myocarditis and nephritis. Thirdly, we undoubtedly prevent postdiphtheric paralysis, which has been emphasized by Comby, of Paris. Fourthly, when laryngeal stenosis exists the intubation period is shortened.

Immediate Effect of Antitoxin on the

Temperature and Pulse.—In some cases there is a slight reaction, such as a rise in the temperature of one or two degrees, although many cases exhibit a decided fall in the temperature within twelve hours after an injection of 5000 to 10,000 units. As a rule the pulse-rate is not affected. In some instances a very rapid pulse, such as 160, had dropped to 140 or less in twelve hours after an injection of antitoxin. In a septic case complicated by myocarditis, in which treatment was begun on the seventh day of the child's illness, a myocarditis was found. The pulse-rate was 76. Twenty-four hours after an injection of 10,000 units the pulse-rate was 82. Another dose of 10,000 units was injected forty-eight hours later. The pulse-rate twelve hours later was 84.

A temperature of 103° dropped to 99° in forty-eight hours after 8000 units had been administered. As a rule the temperature falls after the required dose of antitoxin has been administered.

Next in importance to giving the proper dose of antitoxin is the nutrition of the body.

Feeding of Tonsillar and Pharyngeal Cases (Mouth Feeding).—As a tissue and blood builder no medication equals food. It is, therefore, imperative to support the general nutrition by proper feeding. Milk diluted with some cereal decoction, like oatmeal, barley, or rice, will be better borne than pure milk alone. Sometimes it is necessary partially to peptonize to render it more absorbable. If the child is old enough the yolk of a raw egg can be added to the milk. Concentrated beef broth, chicken broth, clam broth, or oyster broth should be thought of. When feeding once in three hours, it is a good plan to give some of this concentrated broth, followed in three hours by a milk feeding, and so alternate. In this manner we give our patient milk once in six hours. Acid fruits, such as oranges, lemons, grapes, and cranberries, are very well borne. When acid fruits are ordered they should be given an hour before milk feeding. Older children can be given raw scraped steak, calf's-foot jelly, and ice cream, which is nutritious and pleasant.

Feeding of Intubation Cases.—The natural method of feeding an infant is with an ordinary feeding bottle, in an older child from a cup or spoon. Bread

or crackers soaked in milk, toast in milk, zwieback in milk, the yolk of a raw egg beaten with powdered sugar, rice or corn-starch pudding, junket, custard, and jellies are nutritious.

In rare cases in which the tube is frequently autoextubated and where no food is taken, rectal medication may be necessary to sustain life.

Rectal Feeding.—No more than two ounces should be injected at one time.

Milk, predigested, 1 ounce;
Starch water, 1 ounce;
Laudanum, 1 minim.

To be injected slowly through a colon tube, after both colon and rectum have been cleansed by a soap-suds enema.

If the small nutritive enema is well retained, then we can repeat the injection once every four hours, and add the yolk of a raw egg.

Children will swallow milk and broth when fed in the dorsal position on the lap of the nurse. The Casselberry method is quite useful in most cases.

Gavage.—Forced feeding with the aid of a catheter has never been used by the author in private practice. He has frequently seen bleeding produced by pushing the catheter through the nose, denuding membrane and opening up new areas of infection. The question as to whether pseudomembranous masses cannot be pushed directly into the stomach, causing a diphtheric gastritis, is worth considering.

FORMIC ACID IN RHEUMATIC CONDITIONS.

To the *Medical Record* of June 24, 1905, COUCH reports his use of this agent in the treatment of these states.

On account of the severe pains experienced with formic acid injections the author now uses 8 to 10 drops of a one-per-cent solution of cocaine at first, allowing the patient to rest for twelve minutes. He then introduces into the same needle holes the formic acid injections. No pain whatever follows. In all kinds of rheumatism and neuralgias he has found formic acid a wonderfully efficacious remedy. It is not always a specific. It fails occasionally, why he does not at present know, but he believes it to be without doubt the best remedy he has ever used for this painful affection, and he is sure it will be many a long day before a better one is

discovered. He has cured inflammatory articular rheumatism with a temperature of $103\frac{1}{2}^{\circ}$ in forty-eight hours by exhibiting thirty-two injections.

The following case will also prove of interest, and the author hopes of value: Mrs. X., aged sixty-four, was operated upon by him for epithelioma of the lower lip about two years ago. Six months afterward he noticed a hardness in the point of union which gradually increased in size. It became quite painful on account of severe, sharp, shooting, burning pains in the parts. He was confident the epithelioma was recurring. For an experiment he conceived the idea of injecting 8 drops of a four-per-cent solution of formic acid into the growth to relieve the pain and stay the progress of the growth. The growth was "stayed" at once, became smaller in size, and all pain ceased at once, and though the experiment was made two years ago there has been no return of either growth or pain, and the parts are normal.

In conclusion he wants to warn his readers against the use of formic acid in solutions stronger than three per cent. Strong solutions produce gray, round eschars that are difficult to heal.

The following rules, based upon experience, will enable any one to use the remedy with perfect safety:

1. Always cleanse the parts thoroughly before injecting formic acid solution.

2. Never use a stronger solution than three per cent, and a $2\frac{1}{2}$ -per-cent solution is better.

3. Never use it without injecting 5 to 8 drops of a one-per-cent solution of cocaine, or other local anesthetic, as a preliminary to the formic acid treatment.

4. The author always chooses the extensor or outer parts of a limb for exhibiting the remedy and injects it just beneath the skin, though deep injections may be used when occasion demands.

5. He never uses more than 8 drops in any one place of either cocaine one-per-cent solution or of the formic acid solution. If he uses 8 drops of the cocaine he uses a similar amount of the formic acid solution.

6. If large doses of formic acid solutions are used, hard, painful lumps are formed which are slow of absorption and painful; whereas if smaller doses are used

no destruction of tissue results, and no hard, painful growths supervene.

7. He usually injects the most painful points he can find, and makes the injections not less than two inches apart.

8. He never has used more than thirty injections at a time, and it is far better to use only twelve to fifteen and repeat the following day in another place. Avoid all nerve trunks, if possible, since injections involving nerves are apt to be followed by severe pains lasting for twenty-four hours. Injections may be given every day, or every other day, till all the pain has ceased. It will not be apt to return unless gross carelessness or wilful disregard of plain directions exist.

THE SUCCESSFUL TREATMENT OF FOREIGN BODIES WHICH HAVE BEEN SWALLOWED.

BELL writes in the *Medical Press and Circular* of June 14, 1905, that he has employed the following method with success:

Those of us who have been hurriedly called in to such cases must have felt that the usual advice to "leave matters alone for a while," or to "give an aperient," does not appeal very strongly to the frantic mother, however satisfactory it may have proved in our past experience. She expects more from science than such nursery tricks as castor-oil!

Such a position is a very uncomfortable one to face. "Can nothing more be done?" is a question we never get hardened to; and so it was the recognition of the frailty of man well lubricated by a fond mother a short time ago which led the author to adopt the method which he brings forward in his paper.

He was called to see a child—an only one, to make matters worse—about eighteen months of age, who had gleefully swallowed a gold brooch with the letters B-A-B-Y sticking out on all sides.

By the time he arrived the household could not have been in a greater state of confusion if the child had swallowed a barbed-wire fence.

He endeavored to calm the mother's fears with the usual formulæ—"it would be all right," or "the child would pass it easily enough." The author states he need not say what he gathered concerning his ability and originality from the glances of the mother and the nurse—his reputa-

tion was becoming a speck on the horizon. The mother did not consider she had sufficiently impressed him with the special features of that brooch, but he soon had a horrible mental picture of grappling hooks and spear-heads. Something clearly had to be done, and it suddenly occurred to him to feed the child on cotton-wool.

He did not feel like half-measures—we all know the effect a weeping woman who will not listen to reason, or unreason, has on one—so he gave the child a small handful of absorbent wool, teased up very finely, part in milk food, part in jam sandwiches.

The jam sandwiches were a new experience in the life of that infant, and so the wool went comfortably down. In the evening, some hours later, he ordered a dose of castor oil; and oh, what joy in the morning! He was greeted at the front door with a copious motion, among which were several egg-shaped lumps of cotton-wool, and in the middle of one of these was the brooch.

He was rather surprised at the complete success of the method—the brooch was so absolutely packed that it was very difficult either to feel or extract it.

Shortly after this episode the author was sent for to see a little boy, aged $4\frac{1}{4}$, who had swallowed a small brass knob which he had unscrewed from his bed. Here was something which must, he thought, easily pass along at once. But it did not do so. On the third day a skiagram was taken, and the knob was seen to be still in the stomach, in spite of castor oil and plenty of food.

An operation was spoken of—apparently that was less serious in the eyes of the sorrowing relatives than that the small knob should rest a while on its journey south.

So Bell set to work with absorbent wool, giving the child a handful in bread and milk, followed at night by a dose of castor oil.

He did not feel very confident that it would affect the knob one way or the other—it was smooth; surely, he thought, the wool could not stick, and if it did, would it or would it not cause the knob to be gripped and passed along? He was doubtful.

However, he had the pleasure, when he went to learn the result the next day,

of digging it out of a mass of feces and wool.

The author's idea is that the wool may act in one of two ways: (1) either by directly enveloping the body swallowed, or (2) by matting the feces together around it.

He hopes others will try this method, which naturally commends itself most to one when the body swallowed has sharp points, which require covering, lest they catch and stick in the mucous membrane. But since it will also cover smooth bodies and enable them to be gripped and passed on, the author feels ready to meet any mother who has a baby who has swallowed anything small enough to pass through the pylorus. This method of treatment has the advantage of being easily and immediately applied, and his results show that it is well worth a trial—for the child is comfortably relieved of its burden, the mother is satisfied, and the doctor should get plenty of reward, if he has any of the instincts of a conjurer or showman.

Since writing the above paper, Mr. G. J. Johnson, of Dublin, has called the author's attention to a successful case of his treated by this method two years ago. His patient had swallowed a metal denture. The author believes that wool has been employed frequently, although precise records do not exist except in the above mentioned case. It is, he thinks, a method which should be employed, and taught, as a routine practice.

WHEN NOT TO OPERATE FOR APPENDICITIS.

The fact that we have recently printed an editorial on this subject in the *GAZETTE* makes the following conclusions of MOORE in the *Journal of the American Medical Association* of June 24, 1905, of interest.

Moore believes that there are times in appendicitis, as in all other surgical diseases, when operation is not the best treatment. He believes that the radical operation should not be performed, first, when the patient is evidently moribund; second, when the patient is evidently convalescing; third, when certain grave complications are present; fourth, in the midway cases beginning with the third day when the physician and surgeon are

in doubt; fifth, in the extreme cases of suppurating peritonitis.

In conclusion he wishes to state that some of these opinions concerning these late cases are in all probability not final with him, and that should he have the privilege of writing again on this topic a year or more hence the chances are that he will have modified them. The author makes the assertion that he hopes to die before he reaches a point where he is no longer open to conviction, for he agrees with Emerson that a man who never changes his mind probably has no mind to change.

THE EDUCATIONAL TREATMENT OF "TICS."

SACHS in the *Medical News* of July 1, 1905, gives an account of the best methods of the day in the treatment of the various forms of tic. The principles of this educational treatment, as laid down by Brissaud, are as follows: "The immobilization of movements," and "movements of immobilization," which translated into ordinary language means the movements are to be stopped and the patient is to perform other systematic exercises. There is to be an absolute immobility, to quote the French phrase again, "a photographic immobility," of face and limbs during an increasing period of time. The patient is to sit as though he were looking into the camera. At the first sitting he is to preserve this absolute immobility for one, two, or three seconds. At each sitting a second or two is to be added, and thus little by little the time of absolute quiet of all muscles is to be increased. By patient endeavor the victim of tic can manage to pass an entire hour without the slightest abnormal movement. A point of some importance is that the patient should be told in advance exactly how long the session is to last. He is to sit in a comfortable position, and should be encouraged by word of mouth that he should and that he can remain immobile. In other words, the effect of suggestion and of encouragement is to be added, and there is no doubt that such suggestion and assistance as may be given him in this way will make his task an easier one. If the tic patient and his physician—a French author says—"will form an offensive and defensive alliance against the tic, and if they will remain united, they will tri-

umph." Even though there be a tremendous solemnity about all these injunctions some good will unquestionably come of them. After this period of immobility is past the patient should be subjected to well-disciplined movements, particularly of the muscles in the region in which the tic occurs.

The entire sittings are to be of short duration and to occur several times a day. At least one sitting a day should, if possible, be directed by the physician himself. If the patient is asked to do the exercises by himself, he should perform them before a mirror, so that he may have his attention riveted upon them and may be able to determine whether he is doing them correctly or not. Long after the attack has actually ceased the treatment, more particularly the methodical gymnastic exercises, should be continued.

In addition to these exercises it is important to lay down a daily routine, just as we in this country are accustomed to prescribe during the various stages of a rest cure. For his own part the author believes that if this educational plan of treatment is to be a success it can be carried out only at a private hospital, or, in the home of the patient, if the patient can be isolated and be placed under the care of a competent nurse or younger physician. The exact exercises will vary according to the special character of the tic. If the patient has been subject to habit winking he is to be ordered to close his eyes, to open them, to keep them closed a definite length of time, to open them for a definite period, to close one eye and then the other. At the same time order him to open and close the mouth, and if there happens to be a tic of the mouth associated with habit winking, as is so often the case, let systematic movements of the lips be carried out, and in such cases it would be well to order the patient to read aloud in a very slow fashion. It is best perhaps to make him read verses, and ask him to read them most distinctly and with definite rhythm. Each case should be studied on its merits, and the exact nature of its movements, particularly of antagonistic movements, must be dictated by the physician. In a case of facial tic of the eyes and of the mouth the following is the programme prescribed by Meige:

"Every day and three times per day, at the same hours—nine o'clock in the morn-

ing, one o'clock in the afternoon, and at 6 P.M.—the patient is, during two minutes, to stare at himself in a fixed manner before a mirror, observing absolute immobility of his features. During two minutes he is to read aloud, during two minutes to speak before the glass, and during another two minutes to walk up and down before the mirror. This is to be repeated three times during the day, and if during any exercise an attack appears he must commence over again once or twice; if a third time is necessary he must stop, and not resume until the following sitting." In the treatment of speech tics (no doubt many cases of incipient stammering can come under this heading) it is important to submit the patient to definite vocal exercises, making him first of all perform those which seem most difficult, teaching him to prolong vowels, to speak slowly, laying stress upon the articulation of each syllable, and finally to get the patient to read aloud phrases, then sentences, then short stories, and so on. This same method has long since been followed by many teachers who pay special attention to the education of stammerers and of those having other speech defects. In these latter cases the ordinary calisthenic breathing exercises will be of great assistance.

SIX YEARS' EXPERIENCE AT THE MASSACHUSETTS STATE SANATORIUM FOR TUBERCULOSIS.

To the *Journal of the American Medical Association* of June 24, 1905, BOWDITCH and DUNHAM report the results obtained at Rutland during the past six years.

It has not been possible in this paper to do more than give the general outline of methods of treatment at Rutland. For the most part they employ what are recognized now as the essentials in all sanatoria for tuberculous patients, viz., the greatest amount possible of fresh air, good food, judicious exercise, and general supervision as far as is possible in order to guard against the mistakes which arise through ignorance in whatever direction.

As to the use of any one specific remedy, they can frankly say that they have thus far found nothing to equal the effect of the so-called hygienic treatment, although they have at times experimented with certain vaunted remedies with nega-

tive results. In the use of tuberculin they have held a conservative position, doubtless an unwarrantable one in the minds of some of its advocates. They can say, however, that in taking this position it has been with no wish to shut their eyes obstinately to what shall be proved of undoubted efficacy, but because of honest doubt in order to be better able to make comparisons after a reasonable experience with one method. Deeply impressed if not wholly convinced by the statements and experience of those for whose opinions they have great respect, they have in many cases used tuberculin for diagnostic purposes, with the result that while believing it to be not an infallible test and that error may arise, they nevertheless believe it has at times been of much value in determining the nature of doubtful cases, and that in the future, with the possibility of establishing a definite standard in the preparations, it can be of still greater service.

Of its use therapeutically, about which so much is said and written pro and con, they can say that recently, in a few cases which have for several months seemed to remain *in statu quo* under the usual hygienic methods, they have begun its use in accordance with the recommendations of its advocates. Their experience thus far, however, has been too meager to warrant any positive opinion. They can certainly say that they have seen no harm come from its use, and in one or two cases the improvement in symptoms has encouraged them to pursue their investigations still farther.

One word in reference to exercise. One great difficulty in a large sanatorium like that at Rutland is to provide sufficient and healthful amusement to keep the patients content. With men especially, many of them in vigorous condition, chafing at confinement, they allow, in carefully selected cases, a certain amount of freedom of exercise which on general principles some would think unwise. Believing that the moral effect of outdoor games will outweigh the possible deleterious effect of active exercise, they have allowed some of the patients who are approaching a state of arrest of disease to indulge at times in baseball and other games of a less active nature. It should be distinctly understood, however, that these are the exceptions to the general rule. While

an occasional mishap may have occurred, they believe that much less evil has come from this than would be naturally supposed at first thought. At the same time there is a marked beneficial effect on the mental condition of the patients in allowing them this comparative freedom. Incidentally it should be said that in properly selected cases they thoroughly believe in the good effect of moderate calisthenic exercises for the chest, and disagree wholly with those who make the (to them) sweeping assertion that every tubercular chest should be kept in as absolute a state of immobility as possible, no matter how slight the amount of disease. That rest of the diseased organs, as far as it is possible to obtain it, is required for cases of very active trouble, they believe to be true; but they also maintain from experience that expansion of the lungs at regular intervals, where the disease is quiescent, is productive of excellent results.

What then can they say of the wisdom of establishing a State sanatorium after these six years of experience at Rutland? Have the results justified the original outlay, and can they urge other States to do likewise? In their opinion there can be but one answer to this question, and that in the strongest affirmative.

THE TREATMENT OF DIPHTHERIA.

M'CULLAGH in the *Dublin Journal of Medical Science* for June, 1905, in discussing this subject states that intubation is absolutely contraindicated when there is much edema of the upper larynx, or when the fauces and nasal passages are severely implicated; in these latter cases it seems established that there is a much increased vulnerability of the tissues which would invite ulceration from an intralaryngeal tube. Lastly, the probability of membrane low down in the trachea precludes intubation, though this condition is not easily recognized unless casts of the trachea are coughed up. Tracheotomy may be necessary after intubation if the membrane extends, if the tube is repeatedly choked, or where there is great intolerance to its retention. In a small proportion of cases dyspnea persists after removal of the tube, necessitating reintubation; this may be due to persistence of membranous swelling in cases

in which the exudate is not only on the mucous surface but in the stroma as well; or retention may be due to ulcerations caused by the tube or to paralysis of the vocal cords; or, lastly, edema of the subglottic mucous membrane beneath the vocal cords may be a cause of trouble.

Passing now to general measures in our treatment, no drug can be called a specific for the disease, and rational treatment aims at assisting the action of the serum by increasing the resisting power of the patient, by reducing fever and antagonizing the septic or infective conditions met with in cases where possibly with a feeble constitution the local process is of a septic sloughing type, and associated with streptococci. Perchloride of iron is still regarded as a sheet-anchor; 5 to 20 minims, with quinine 1 grain, may be given every two, three, or four hours, alone, or combined with potassium chlorate 1 to 5 grains. An initial aperient dose of calomel should be given, and repeated with benefit from time to time. Benzoate of sodium is useful both as an antiseptic and for its modifying effect on the secretion. Feeding is important—fluid or semifluid food must be given—milk, beaten-up eggs, beef juice, which is invaluable; pounded meat, barley-water, albumen-water, or soups should be given at regular intervals, and nutrient enemata if swallowing is painful. Indications of heart failure should be watched for and met with stimulants.

Complications.—Of these the most serious is heart failure, which may not appear till well into convalescence. With the serum treatment these cases will be rare—they should be met with stimulants, digitalis, and if necessary hypodermics of ether or caffeine. The patient should be kept at rest, and young patients especially guarded against sudden or undue exertion. Strychnine is useful later on. Albuminuria is common, and if in quantity with blood-casts indicates serious nephritis—it must be met by a full purge, milk diet, and the exclusion of chlorides, as far as possible, from food or drink.

Bronchitis may occur; bronchopneumonia and pulmonary gangrene will need vigorous exhibition of antiseptic inhalations and antiseptic medications, such as quinine or salol, with stimulants.

Extension to the conjunctiva will need

strong boric lotions with ice compresses. Diphtheric otitis media has occurred, requiring puncture of the tympanum with antiseptic treatment of the middle ear. Extension to the antrum of Highmore may demand surgical treatment. Hemorrhage from local ulceration will be met by styptics applied to the seat of bleeding, such as adrenalin; but Ernest Vieillard points out that epistaxis sometimes occurs before coryza, that this is a grave symptom, and that the earlier it appears the worse the prognosis. Diphtheria of the skin may occur; it may be washed with HgCl_2 solution, covered with naphthol; or camphor and cotton-wool may be applied with collodion.

Convalescence requires careful watching, as heart failure has occurred as late as six or seven weeks after convalescence is established. Nourishing food should be freely given, with tonics; exercise permitted only gradually, and on the least sign of cardiac failure or distress absolute rest should be insured, and heart tonics administered.

Paralysis may develop, or multiple neuritis, which may be fatal. These complications require rest, with gentle frictions, and later massage, electricity, and strychnine internally must be persevered with. In very chronic cases injections of strychnine into the muscles have proved most serviceable.

FOUR NEWER POINTS IN THE TREATMENT OF THE NEPHRITIC MANIFESTATIONS OF BRIGHT'S DISEASE.

CROFTAN in the *Journal of the American Medical Association* of June 24, 1905, speaks of these newer points as follows:

1. *The So-called Surgical Treatment of Bright's Disease.*—Splitting of the kidney capsule, or decapsulation of the organ, for the cure of Bright's disease is altogether irrational. The temporary relief of tension may improve the blood-supply to the kidneys, and hence restore for the time being some functional activity to diseased epithelia; and this improvement in the renal function may become manifest by a reduction of edema, by a transitory decrease in the albuminuria, the disappearance of formed elements (casts, etc.) from the urine, and an increase in the excretion of solids and of water.

Bright's disease, however, is a systemic disorder, and the nephritis is merely one of its symptoms. Any treatment of the kidneys alone, whether surgical or otherwise, is therefore purely symptomatic, and can in no sense be regarded as curative. One might as well amputate the rose spots in typhoid fever and expect to cure the disease.

It is not surprising to find, therefore, that no true case of Bright's disease has even been permanently benefited by operations on the kidneys. The procedure is mentioned in this place merely to be condemned.

2. *Liberal Feeding.*—In acute forms of nephritis underfeeding, or even starvation, of the patient not only is permissible, but is good practice, for the smaller the amount of excrementitious material the kidneys are forced to eliminate, the more they are spared, and the more rapidly they resume their normal functions.

One may say, in a broad sense, that the daily amount of feeding, expressed in caloric values, should be inversely proportionate to the presumable duration of the nephritis. Hence, the more chronic the nephritis, the more nutritive should be the diet; and as the nephritis of Bright's disease is the most chronic variety with which we have to deal, a patient with this disease should receive daily the full caloric value in his diet that is required to maintain nutritive equilibrium—i.e., at least thirty calories per kilo of body weight.

There is no compelling reason why a mixed diet should not be given in these cases. It is ridiculous to postulate that the albumin of the food will reappear as such in the urine, and that the more albumin the patient eats the more should he excrete—though this prejudice still exists in the minds of many. A diet containing variety should be carefully selected, and only those articles excluded that lead to the formation of urinary end products, that are eliminated with difficulty, and hence can be assumed to irritate the kidneys when these are diseased. The details of this selection cannot be given within the narrow scope of this article.

A few words in regard to the popular method of feeding sufferers from Bright's disease with milk alone.

In acute forms of nephritis this is good practice; in chronic forms, however, and in particular in the nephritis of Bright's

disease, the only argument in favor of an exclusive milk diet administered for long periods of time is the fact that such a regimen reduces intestinal putrefaction, and hence removes a prolific source of renal, hepatic, and cardiovascular irritation.

As against this, the author brings forward the following five arguments:

1. In order adequately to nourish a patient with milk, enormous quantities must be given, and where enough milk is given the albumins are much in excess (200 to 300 grains instead of the normal 100 grains in the twenty-four hours); this imposes an excessive task on the kidneys, and renders the restriction of albumins that is attempted by the withdrawal of meats fictitious.

2. The administration of large quantities of milk causes flooding of the heart and arteries with water, and hence must act deleteriously on an already overtaxed cardiovascular apparatus.

3. Milk is deficient in iron, and an exclusive milk regimen, if carried out for long periods of time, leads to deficiency of hemoglobin and all the dire results entailed thereby.

4. The constant dilution of the gastro-enteric secretions is harmful.

5. An exclusive milk diet must needs sooner or later become monotonous and distasteful, and hence deprive the patient of the psychic stimulus of appetite that is all-important for proper digestion.

THE TREATMENT OF FACIAL NEURALGIA.

The *Birmingham Medical Review* for May, 1905, contains an article on this subject by HUTCHINSON, who emphasizes the importance of a correct appreciation of the various forms of neuralgia minor. A brief account is given of the special features of neuralgia due to ocular lesions (eye-strain, glaucoma, iritis, etc.) and herpes frontalis, to catarrhal or suppurative lesions in the air sinuses in the frontal, ethmoid, and sphenoid bones; of the various forms of syphilitic cephalalgia, and the facial neuralgia of tabes dorsalis; and of that due to dental causes.

The treatment of minor neuralgia is indicated by the varying causes, but in a certain number of cases no cause can be

found. For these, while it is certain that there is no curative treatment by drugs, empirical remedies may be of some use, and the following selection is given:

Iodides of potassium and sodium, in cases having a syphilitic origin.

Quinine, the valerianate (5 grains), the hydrobromide (2 to 5 grains), and the salicylate (5 to 10 grains).

Cannabis indica (one-fourth to one grain) is a dangerous remedy, but affords relief in some cases. [With this we cannot agree.—Ed.]

Gelsemium (5 to 15 minims of tincture) is stated by Sir Victor Horsley to have relieved true epileptiform neuralgia when given in almost poisonous doses.

Morphine: its use in epileptiform neuralgia is a grave blunder, or worse. It should never be used.

It is equally certain that local treatment of neuralgia major is useless, but in some forms of neuralgia minor, sedative inunctions, the ethyl-chloride spray, electricity in its various forms, nerve-stretching, and the injection of osmic acid into the peripheral nerves, have afforded relief.

It is important to define epileptiform neuralgia (neuralgia major or tic-douloureux) clearly, since in it alone are operations on the Gasserian ganglion indicated. Its chief features are these:

1. It is almost invariably unilateral—only two exceptions are recorded by Krause and Head.

2. It commences in the distribution of either the second or third divisions of the fifth nerve, and tends to involve both to the same extent.

3. The first (ophthalmic) division is involved comparatively rarely.

4. The attacks of pain are paroxysmal or spasmodic, and tend to steadily increase in severity.

5. In the intervals there is entire freedom from pain—a marked contrast to most cases of minor neuralgia. The intervals become progressively briefer and briefer.

6. During each attack there is usually spasm of the facial muscles of the affected side.

7. No cause can, as a rule, be assigned for the onset of the disease. When once established, very slight stimuli induce the spasms.

8. The subjects of the disease, at its

onset, are adults between the ages of thirty and fifty.

9. Its progress is one of steadily increasing severity, lasting an indefinite number of years. Spontaneous cure is almost unknown.

10. However long the duration of neuralgia, there is no disturbance of sensation (apart from operation).

11. Medical treatment, except increasing doses of morphine, has little or no effect. Operations on the peripheral branches of the fifth nerve may give temporary relief.

12. Partial or complete removal of the Gasserian ganglion alone affords permanent cure.

THE TREATMENT OF ACNE VULGARIS.

Dr. MACLEOD in the *Clinical Journal* of June 14, 1905, has something of interest to say in regard to this common malady. He mentions a few of the more serviceable lotions, and of first importance is the following, which is a favorite in his country: Zinc sulphate 3j, potassium sulphide 3j, rose water f3iv, with or without addition of sulphuris precipitatus 3j. A somewhat more stimulating lotion is Kimmerfield's sulphur lotion, which contains: Sulphuris precipitatus 3j, camphoræ gr. iij, pulveris tragacanth. gr. v, aquæ calcis and water of each f3ss; or the following: Sulphuris precipitatus 3j, glycerini v mins., alcohol. xxx mins., aq. f3j.

As a substitute for sulphur, ichthyol, a substance containing sulphur, may be used in the form of a 20-per-cent solution in water. Resorcin is also a favorite with certain dermatologists, and may be employed as a lotion in 50-per-cent alcohol in a strength of 15 to 30 grains to the ounce. This lotion is especially valuable in the treatment of acne of the chest and back, but on the face it is apt to be too irritating, and if applied frequently causes considerable desquamation. The irritation and mild dermatitis is an advantage on the back, and after it has been produced by the resorcin lotion the patient should be given a warm bath and then powdered over with boric acid. Sulphur baths are also of value in the treatment of acne of the back, and may be made by the addition of two ounces of sulphur of potassium to thirty gallons of water.

Powders are also of great service in the treatment of the disease. They reduce the greasiness of the skin and have a soothing effect. Precipitated sulphur dusted on is one of the best powders and is not unpleasant. As a substitute boric acid, with the addition of salicylic acid gr. xx to the ounce, may be prescribed.

Soaps.—Green soap and also various medicated soaps are useful adjuncts in the treatment of acne. Soft soap is especially indicated when the back and chest are involved. It removes the grease, cleanses the skin, and intensifies the action of the resorcin lotion referred to above.

The medicated soaps which are most useful are those containing a considerable proportion of sulphur, and this may be combined with camphor and Peru balsam. The beneficial effect derived from the soap is largely dependent on the manner in which it is used. It does little or no good to employ it like an ordinary toilet soap, and simply to wash the part with it; but it should be lathered on thickly with a shaving brush and the lather left for half an hour, or even allowed to dry on. In this way, however, the soap acts as an irritant, and the skin does not readily bear such severe measures. Consequently, at first, the lather should be left on for a few minutes, and the time gradually increased as toleration to the remedy is established, till it is allowed to dry on. One of the greatest values of the soap lies in the fact of the macerating property of its alkali, which removes the superficial layers of the epidermis and allows the parasiticide ingredients to act on the more superficial microörganism situated about the mouths of the pilo-sebaceous follicles. Should the soap prove too irritating, its use should be intermitted for a time, and the skin should be soothed by the application of a cream containing oleate of zinc, or one such as the following: Calaminæ præparatus 3j, zinci oxidi 3j, aquæ calcis f3ss, ol. olivæ f3ss.

Ointments.—The author has placed this method of using parasiticides last, for in most cases, except those which are unusually mild and require stimulating, he prefers to employ lotions or powders. Ointments are said to penetrate more deeply, but they cannot get deep enough into the follicles to do any real good, and their greasiness keeps back discharges in the skin, forming a water-proof coating

over it, stops evaporation, and causes a certain amount of edema.

These facts, however, have been taken advantage of by our German colleagues to form the basis of what is known as the "peeling cure" of acne. One of the chief exponents of this method is Lassar, of Berlin. By means of an irritant ointment applied frequently, an inflammatory reaction is set up in the skin, which is followed by peeling. For this purpose Lassar employs the following paste: Beta-naphthol 3j, sulphuris precipitatus 3iv, saponis viridis 3ij, and unguentum aquæ rosæ 3ij. This is rubbed in twice daily for three or four days, and then a bland paste is substituted containing zinc oxide and starch, with a small percentage of salicylic acid. In place of the beta-naphthol, Unna advocates a resorcin paste to produce the reaction and peeling. His "Schalpaste" contains resorcin 3ij, zinc oxide 3iij, starch 3j, and benzoated lard 3iss. This is an unpleasant form of treatment, but one which has met with considerable success in their hands. When undergoing this treatment it is advisable for the patient to remain indoors.

We are indebted to Unna and Lassar for another valuable and most practical hint in the treatment of acne, and that is the employment of antiseptic plaster mulls, one of the most useful of these being the mild carbolic acid (2-per-cent) and mercury (2-per-cent) plaster. This, when applied over the surface, has a more continuous action than any ointment, causing small pustules to abort, and at the same time possessing a powerful action in destroying microorganisms on the cutaneous surface.

THE CAUSES AND TREATMENT OF BALDNESS.

The *Bristol Medico-Chirurgical Journal* for June, 1905, contains an article by WALDO in which he tells us that preventive measures are of course much the most satisfactory. It is sometimes possible to induce hair to grow when the disease has not been too long present, but it is even then more or less unsatisfactory. Assuming that bacilli are present, they are then deep down in the hair follicle, and we are met with the same difficulty that occurs in tinea tonsurans, which accounts for the subjects of that condition, if they have not

very great faith, going the round of the doctors, until the last one gets the credit for the cure, often after the fungus has expended itself. The scalp in the seborrheic condition may look to an ordinary observer quite healthy, and yet there may be very marked funnel-shaped depressions round the hair follicles which are filled with fat. In some cases the seborrhea, as Crocker says, may be limited to these depressions, the surface being clean, and although this cupping of the hair follicles occurs chiefly in severe cases, it may, he says, be partially or completely recovered from.

Now first, as regards washing and bathing. One hears ridiculous nonsense regarding washing the scalp, and especially from the female sex. There are women who are proud to boast that they have not washed their heads with soap and water for several months, perhaps years; they little know what an effective disinfectant is ordinary soap, and if it is superfatted it causes very little dryness of the hair. If there are well-marked signs of seborrhea black soap is better, and if combined with spirits of wine and perhaps a little thymol it is a powerful remedy for good, and it should be repeated every day until all signs of the seborrhea have vanished. If it were not for the concentration of hair-producing power in the scalp of women they would oftener be the victims of premature baldness. In the author's opinion men and women should make a rule of washing their scalps with soap and water at least once a week, especially after each visit to the barber, as it is here they are likely to become infected from the clipper or brushes or other materials. They should also occasionally soak their own brushes and combs in a five-per-cent solution of carbolic acid.

An important preventive precaution is to induce an abundant blood-supply to the scalp, which can be well carried out by simply moving the scalp upon the skull in different directions with the rough towel after the morning bath. It is well, too, at the same time to rub the ears, as it not only tends to prevent chilblains, but what is more important, it is said to ward off senile deafness, and it would be interesting to hear what aural surgeons think of this. Bathing, especially in the open sea, is thought to thin the hair, but the author does not think that it ever does any

lasting harm. Much more important is it to warn people with perforated drum membranes that sea water is an irritant to the middle ear, and that they run a great risk of speedy death from meningitis.

It is thought by some that hard hats are harmful, and especially if they fit tightly. The author thinks, however, it is more important to see that the linings of the hats are clean, but at the same time a hat should not interfere with the circulation or innervation of the scalp, and it is better to have it perforated for ventilation. We were taught years ago that wounds of the scalp always healed easily, as the parts were so vascular, but it is believed that surgeons of the present day have more fear of infection and greater difficulty in insuring cleanliness in the scalp than in most other parts of the body, as it is such a nursery for germs. It is reported that a London surgeon on one occasion was able to trace a series of post-operative suppurations to a seborrheic house-surgeon, the calamity coming to an end as soon as the seborrhea was brought under control by appropriate treatment. It is thought, too, that seborrheic patients are more prone than others to post-operative suppurations, probably through the agency of microbes retained within the dilated follicles of the skin in spite of the most sedulous cleansing.

When there is any tendency to seborrhea it should be treated with a microbicide, but not with much hope of curing it, for the tendency to recurrence dies only with the patient. Yet the more immediate complications of seborrhea are readily checked by these remedies. As a palliative, then—those who prefer to use some more or less greasy application, the author suggests half an ounce of precipitated sulphur made up with a pint of liquid paraffin, and applied to the scalp every morning; those who prefer a non-greasy microbicide, the same amount of sulphur to a pint of spirits of wine. The author does not prescribe paraffin for females, as the danger of fire has to be thought of, and as a matter of experience women dislike putting anything greasy on their heads. People constantly ask for something that will make the hair grow. The view we take is that the old stimulating remedies, even beef-marrow preparations, are unnecessary; for, as a rule, if the microbe and its immediate consequences

are removed the hair is nearly always ready enough to grow. A daily lotion of acetic acid and resorcin, made up with eau de Cologne, and rubbed well into the scalp with a piece of flannel, is as likely as anything else to soak down into the hair follicles without doing any harm. Nascent sulphur lotions are preferred by some, and then hyposulphite of soda and tartaric acid are used separately. Salicylic acid preparations often act well. Where there is hyperemia, other remedies of a more soothing character would be first used.

THE MEDICAL AND SURGICAL TREATMENT OF GASTRIC ULCER.

BEVERLEY ROBINSON and FRIEDENWALD in the *New York Medical Journal* of June 3, 1905, write on this very important subject in two separate contributions.

In his concluding remarks Robinson would insist upon certain facts:

1. That probably no known treatment will prevent the formation of fresh gastric ulcers (Rutherford Morrison).

2. That uncertainty of diagnosis often leads to clinical error (Francis, Howard).

3. That acute gastric ulcer must be recognized clinically, for it usually heals, and the treatment is purely medical. A considerable minority fail to do so and constitute a share of the chronic ulcers. A chronic ulcer is frequently, if not usually, chronic from its inception (Mayo).

4. That despite the brilliant results of gastroenterostomy in the treatment of gastric ulcers, it should be remembered that there may be forcible objections to it: "Is it probable that such a revolution of the chemical and physical processes of digestion as is involved in a successful gastroenterostomy is likely to be followed by no evils?" It is desirable to know a great deal more than is yet known of the after-history of patients operated on (R. Morrison).

5. That any form of gastroenterostomy is a grave operation, even the most approved and the newest, on account of opening internal organs and stitching them together in unusual positions (J. G. Mumford).

6. That conservative clinical diagnoses, in addition to correctly interpreted

autopsy findings, will enable us to form safe judgments of cases of ulcer of the stomach, as to the medical or surgical treatment.

7. That in emergency cases, whether of hemorrhage or perforation, frequently no previous symptoms existed which would permit even a probable diagnosis, hence no rational preventive medical treatment could be carried out.

In Friedenwald's paper he states that there are a number of mild cases of ulcer of the stomach in which it is impossible to carry out the rest treatment. Under these conditions the ambulatory form of treatment may be undertaken according to one of three methods. In all cases the patient is permitted only to take liquid or semisolid food.

(1) Nitrate of silver is prescribed in solution in one-sixth to one-third grain doses for a period of three weeks; or (2) bismuth subnitrate may be administered in large doses (one teaspoonful) three times a day. Fleiner recommends giving the bismuth suspended in water after previous lavage of the stomach. After the stomach has been thoroughly cleansed, 10 to 20 grammes of subnitrate of bismuth, suspended in 100 to 200 cubic centimeters of water, is passed into the stomach through the tube, after which the patient is required to lie on his right side for a half-hour. In those instances in which there is any contraindication to the use of the tube, Fleiner advises the administration of 10 grammes of bismuth subnitrate suspended in a glass of water in the morning before breakfast.

(3) The oil cure has been recently recommended by Cohnheim in the treatment of ulcer of the stomach. Olive oil is taken three times daily from half to one hour before meals: in wineglassful doses in the morning and in dessertspoonful doses at noon and in the evening. In very mild cases an emulsion of sweet almonds may be substituted for the oil. The oil fulfils several indications. It forms a coating over the stomach and thus assists in overcoming pylorospasm, and by relieving friction it overcomes pain; it checks the excessive secretion of acid, and improves the general nutrition. The treatment of a number of special symptoms must yet be referred to.

Hemorrhage.—In all cases of hemorrhage absolute rest in bed must be in-

sisted upon, an ice-bag should be placed upon the epigastrium, and a hypodermic injection of morphine administered. It is quite doubtful whether any drugs which we have at hand have any special influence in checking bleeding from the stomach. Among the remedies which may be utilized for this purpose are hypodermic injections of ergot or gelatin (100 grammes of a two-per-cent watery solution). Recently Einhorn has recommended the hypodermic injection of a syringeful of adrenalin chloride, 1 to 2000, twice daily, or the internal administration of 15 drops of the same solution three times daily. In cases of great weakness or actual collapse from hemorrhage saline infusions must be resorted to. Very profuse hemorrhages recurring at short intervals, or even frequent small hemorrhages of the stomach which are not relieved by the usual treatment, require surgical interference.

2. **Acidity.**—For the relief of the acidity, which is a usual accompaniment of ulcer of the stomach, one is frequently required to administer alkalis, alone or combined with belladonna or codeine.

3. **Constipation.**—This symptom may be relieved by the use of enemata or by the internal administration of oil or Carlsbad water.

The question which always arises after the treatment of ulcer of the stomach, and which is sometimes difficult to decide, is, What evidence have we that an ulcer is healed? In a general way this question may be answered in the affirmative when there is an entire absence of pain after taking solid food; when there is no longer pain on pressure in the epigastric region; and finally, when repeated tests fail to reveal further "occult hemorrhages" in the fecal discharge. Another question of equal importance which the physician must decide is the time when surgical procedures should be instituted—in other words, when cases of gastric ulcer should no longer be treated medically. The indications for surgical procedures are as follows:

1. **Perforations.**—All perforations should be treated at once by surgical methods.

2. **Perigastric Adhesions.**—Perigastric adhesions produced by gastric ulcers, especially those accompanied by tumor formation, should be treated surgically.

3. *Hemorrhages*.—Hemorrhages which are very profuse, occurring at short intervals, or even small, frequent hemorrhages which are not relieved by medical means, require surgical treatment.

4. *Persistent Nausea and Vomiting*.—In all cases in which there is persistent nausea, vomiting, and pain, not relieved by the rest treatment or by a strict abstinence cure, it is necessary to seek surgical aid.

5. *Recurring Ulcers*.—All cases of ulcers of the stomach recurring at shorter or longer intervals, notwithstanding a proper rest or the abstinence cure, require surgical treatment.

ADRENALIN IN ASTHMA.

The *Memphis Medical Monthly* for July, 1905, tells us that one of the most inexplicable results in therapy from a physiological standpoint is that of the practically instantaneous relief of the paroxysms of asthma by the injection hypodermically of from five to ten drops of the one-to-one-thousand solution of adrenalin. We are taught that the paroxysms of asthma are due to the action of the vasomotor constrictors in contracting the walls of the bronchioles, thus shutting off the air supply of the patient so afflicted; and while comparatively little seems to be known of the pathology of asthma, this theory of the nature of the paroxysms seems pretty generally to be held. Yet in the suprarenal gland extract we have one of the most powerful, if not the most powerful, vasomotor constrictors known, which, when injected into the subcutaneous tissues, induces speedy relief from the asthmatic paroxysm. This fact is well authenticated by the experience of various clinicians, and quite a number of cases have been reported which bear out the statements made as to the remarkable action of the agent mentioned. Several reports of this character have been made to the literature of medicine, and in the last issue of the *Memphis Medical Monthly* one of the local physicians reported his very satisfactory experience in this respect. Personally we also have observed such instances of relief from the paroxysms of asthma by the injection of adrenalin. It seems to act as if by magic.

The blood-pressure-raising properties of the extract of the suprarenal gland are

well recognized, and it is claimed that adrenalin injected hypodermically will check hemorrhage by its vasomotor constrictor action, but the use of this agent as a hemostatic has largely been confined to its application locally to bleeding wounds or surfaces. Here its effect is marked, and its blood-constricting action is shown by the blanching of the tissues to which it is applied, but this effect has been regarded as purely local, and there are many who are loath to believe that its action extends beyond a superficial and local area. Some argue that injected hypodermically adrenalin could not possibly have any effect from its local action. However this may be, we do know from unquestioned evidence that adrenalin injected hypodermically relieves the paroxysms of asthma, and whether we can reason out its action scientifically, or must merely use it empirically, it is something to congratulate ourselves upon that we now have a drug to use in this disease which will take the place of morphine, which heretofore has seemed to be the only thing that would relieve these paroxysms, and which ever held out to our patients the prospect of their becoming morphine habitués. In view of the fact that asthma presents in the majority of cases a practically incurable condition from the standpoint of present-day therapeutics, it is a great boon to these sufferers, and a fortunate thing for the medical profession, that an agent has been found which will give the desired relief from these distressing paroxysms, and which does not hold out the dreaded prospect that is afforded the morphine user.

THE USE OF HYOSCINE HYDROBROMATE IN THE TREATMENT OF THE MORPHINE HABIT, WITH REPORT OF CASES.

To the *California State Journal of Medicine* for July, 1905, BERING writes on this subject. He says that when we read the various text-books on the treatment of the morphine habit, written by some of the ablest men in the country, and endeavor to carry out the plan of treatment suggested, it is no wonder so few physicians in general practice ever undertake to free their unfortunate patients from this dreaded curse, with all its accompanying nervous manifestations,

collapse, oftentimes death, and suffering that no words can describe.

Knowing that he has something better to offer to the medical profession is the author's reason for presenting this paper, with the hope that it will awaken an interest in a line of work that is now practically conceded to the charlatan and quack. In the use of hyoscine hydrobromate in the plan of treatment that he outlines, any physician can free his patient of this disease in a very short time without any danger at all—no cardiac failure, cramps, vomiting, or any of the many symptoms due to the immediate withdrawal of the drug; it is truly surprising in what good condition the patients come from under the treatment.

In treating a patient it is absolutely essential to have him in a sanitarium, where he can be seen often, as well as to keep him from the sympathetic influence of home and friends, thus awakening a self-reliance that is very needful. It is better to treat the patient in a room as free of furniture as possible, as the hyoscine causes all kinds of hallucinations. The room should be darkened, as the light causes eye troubles. Bering urges that we do not undertake to treat a patient unless we have thoroughly trained nurses, in whom we have the utmost confidence, as the patient must not be left alone a moment during the administration of the hyoscine, nor for the first twenty-four hours after the last dose of hyoscine has been given.

Before commencing treatment we must first ascertain the condition of the heart, lungs, and kidneys; and yet patients suffering from heart and kidney lesions can, with proper care, be successfully treated. The night before starting the hyoscine a vapor bath is given for a sufficiently long period to secure free action of the skin. The author also endeavors to secure free elimination of all toxic material from the system, which, owing to the almost paralyzed condition of the muscular and glandular structure, is sometimes difficult of accomplishment and requires heroic treatment and medication. In his experience the author has found nothing better than strychnine sulphate, in doses ranging from $1/32$ to $1/8$ grain every two hours for three or four doses, with calomel, podophyllum, ipecac, etc. It is surprising what elimination takes place under the

full stimulus of the above, followed in six or eight hours with a saline purgative. This action is usually secured before commencing the hyoscine, while the patient is still supported by his accustomed drug. During this eliminative course light diet should be given, the better to get this result, which, when secured, prevents all nausea, cramps, pains, and relieves the portal system sufficiently to compensate the heart for the lack of its accustomed stimulus, thus preventing the grave danger of cardiac failure.

Hyoscine is then given in doses ranging from $1/100$ grain every hour to $1/400$ grain every four hours, until the full physiological action is secured, which is a slowing of the pulse from 10 to 15 beats per minute, flushing of the face, dilated pupils, dryness of the throat, a mild, muttering delirium, picking at imaginary objects, and fanciful hallucinations. It is these symptoms, in a modified form, that are needed, and from that time on just enough hyoscine is given to keep the patient in this condition for a period ranging from thirty to forty hours. Usually at the end of 30 hours the writer allows the patient to come from under the influence of the hyoscine and ascertain his feeling, and if free from pain and desire for the drug, no more hyoscine is given; but if the reverse is the case, it is then resumed for another twelve or twenty-four hours, at the end of which time the patient will invariably tell you he has no desire for his accustomed drug, and from this time on the treatment consists of recuperating the patient. After the second or third day the appetite is something wonderful, five or six meals a day being called for. Frequently after the first dose the patient will drop off to sleep for several hours, during which time the author gives no hyoscine, but resumes it upon awakening. He has had some patients get wildly delirious before the hyoscine took effect, necessitating the giving of $1/100$ grain every half-hour until quiet was secured.

Should the patient at any time show any signs of pain, it is an indication of the necessity for more hyoscine, as freedom from pain is all desirable, and it can be easily prevented by keeping up the action of the hyoscine. Should the delirium become too violent, it is due to an excess of hyoscine, and it is better to dis-

continue it until the patient is quite free from its influence, and then resume it in smaller doses with longer intervals between. Usually patients come rapidly from under the influence of the drug, and twelve hours from the administration are quite rational and in good spirits. The action of hyoscine is not the same in any two patients, consequently needs close watching; while it is perfectly safe when carefully used, it is a powerful agent for harm when not so used. If free elimination is secured before commencing the use of hyoscine, it is seldom that a cardiac stimulant will ever become necessary; should it become necessary, however, sparteine sulphate in doses from $\frac{1}{8}$ to $\frac{1}{4}$ grain is all that is needed, repeating it every four to six hours, as indicated.

ACNE VULGARIS AND ITS TREATMENT.

In the *Bristol Medico-Chirurgical Journal* for June, 1905, WILLS tells us that in the treatment of this disorder, after the removal of the predisposing causes as far as practicable, the attention should be directed to the local conditions; and the following considerations should guide us:

1. The removal of the superfluity of grease.

2. The destruction of the irritating microorganisms growing in the fat.

3. The enucleation of comedones and pustules.

4. The alteration of the skin and its secretion in such a way as to make a further infection more difficult.

5. The maintenance of a more perfect hygiene of the skin.

To remove the superfluity of grease from the skin it is necessary to relieve the hyperemia as well as to use mechanical means. From its tendency to relieve congestion and inflammatory conditions, ichthyol internally, as well as externally, has frequently given good results. It may be taken in pill form or in capsules, but it must always be supplemented with friction externally. Sulphur internally has probably little effect, though it is excreted to some extent by the skin; it is found that calx sulphurata helps in the resolution of the indurated conditions.

Externally friction with an alkaline medium is of the greatest importance; and although it is objectionable to the patients, the advantage obtained in ap-

pearance is so great as a rule that they are willing to persevere. The medium used is generally some form of soap, nor does it matter much what soap; though some skins are so irritated by strongly alkaline soap that perseverance with it would produce a deleterious amount of hyperemia and an undue amount of soreness. As friction with a flannel or rubber sponge is an important part of the treatment, soap forms a convenient medium for the alkali, otherwise any mildly alkaline material would do which will remove easily any of the grease which is about the skin. Friction is used in several ways. It tends to empty the sebaceous follicles, to remove comedones, and to cause the skin muscle fibers to recover their tone, which is frequently wanting.

While this is being done on the face, and the author does not wish to dwell upon the already well-known treatment, any attending seborrhea capitis should receive attention.

After the soap-friction some mild antiseptic should be used, and it is a common practice to use sulphur in some form or another. But the antiseptic must be mild enough to prevent undue hyperemia on its own account. Sulphur, or ichthyol, seems to have a specific action in inhibiting the microorganisms.

Where there are many pustules the friction is better postponed until they have been dealt with. Incision should be practiced, to prevent pock-marking. But expression of the comedones and pustules is not the best method to deal with these. When the patient is willing to give time to himself, a great deal can be done with a sharp surgical needle in lifting out the upper parts of the comedones and in pricking the pustules. The author has tried expression and needling, and also drawing out the comedones with a large-barreled suction syringe. The latter method can scarcely be done on oneself, though the result is good when another does it. It draws out the contents of the follicle without undue bruising of the surrounding tissue. Sometimes it fails to "start" the comedo, but freeing the black-head with a needle will usually make the second attempt successful. The author has also used it for small pustules with good results.

Scraping the face with a blunt spatula is a useful practice. This performs sev-

eral of the offices of friction, but it can scarcely be used where pustules are many and the face is sore.

The shelling of the skin with resorcin the author has never practiced, but it is said to give good results. In Norman Walker's words: "It consists of the application of equal parts of resorcin and Unna's zinc paste, thickly spread, to the skin twice daily for three or four days. At the end of this period some soothing ointment is applied, and in a day or two the skin peels off in large flakes, bringing with it the hyperkeratotic horny layer and a large number of the comedones. The method," he continues, "involves confinement to the house, and in that respect is disadvantageous, but it does more in a week than probably two months of the milder treatment will accomplish." This is one way of altering the skin and its secretions, and it removes bodily the altered layer and its masses of bacteria. There is, however, another agent to hand which has proved of great service in those cases, which one frequently sees, where ordinary treatment proves too slow to combat the disease in the face of the numbers of comedones that suppurate and indurate in spite of all one can do to prevent them. In the *x*-rays we have an agent which alters the skin secretions, stimulates the growth of the normal cells, and promotes the absorption of the granulomatous tissue. So that ulcerations heal, comedones get thrown off with the peeling or powdering skin, and the indurated and blind tumors get smaller and disappear without discharging. After a satisfactory reaction has been obtained one usually finds the parts treated by the rays clear of comedones and pustules, showing only the scars of previous abscesses, while outside the rayed area the comedones, papules, and pustules are as vigorous as ever.

RHEUMATOID ARTHRITIS, AND ITS TREATMENT.

In the *London Practitioner* for July, 1905, LUFF expresses the belief that if rheumatoid arthritis is seen and recognized early in the acute stage it is curable. In the later chronic stages it is possible to arrest the disease, to remove the pain, and to secure greater movement of the joints, but it is not possible to bring the

disorganized and deformed joints back to their normal state. It is remarkable, however, even in many chronic cases what a considerable amount of improvement may be effected in the joints if the method of treatment presently to be described is persevered with for a prolonged period of time.

The not infrequent mistake of diagnosing rheumatoid arthritis as gout, and the consequent placing of the patient on a restricted and spare diet, has led to the development of severe and incurable forms of the disease. It is essentially a disease that requires good and nutritious feeding, and the author has met with many cases of rheumatoid arthritis which had gone thoroughly to the bad, through the initial error of mistaking the disease for gout, and treating it with a spare diet. The diet should be as liberal and as good as the patient can digest, and animal food should be partaken of freely, though not to the exclusion of vegetables. The exclusion of the red meats, and of such articles as sugar, potatoes, cauliflower, peas and beans, on the assumption that they do harm in rheumatoid arthritis, is, in the author's opinion, not only unnecessary but is absolutely opposed to the treatment he has adopted and the careful observations he has made, in the dieting of patients suffering from this disease.

A moderate quantity of wine or stout should be taken with lunch and dinner. Any kind of wine that agrees with the patient may be taken; but perhaps a generous red wine, such as Burgundy, is the most suitable. Woolen clothing should always be worn next the skin; and exercise, short of producing pain, should be indulged in. A dry, gravelly soil, and a warm, dry climate, are most suitable to patients suffering from this disease.

The treatment of rheumatoid arthritis by drugs must be quite different from that of gout or rheumatism, and efficient measures must be taken to improve the general condition and health of the patient. The drug that the author has found most useful in the treatment of rheumatoid arthritis is guaiacol, in some hundreds of cases, extending over several years, and as the result of his experience the author does not hesitate to say that, if administered in sufficient quantities, and for a sufficiently long period of time, it is capable, in the great

majority of cases, of arresting the disease, of diminishing the size of the joints, and of permitting increased movements. It also relieves pain markedly. It is useful in both the subacute and chronic forms of rheumatoid arthritis. The guaiacol probably acts by arresting further infection from the intestinal tract, and after absorption, by combining with the bacterial toxins and assisting in their elimination. The iodide of potassium probably acts by promoting absorption of the hypertrophied fibrous tissues.

The most convenient form of administering the guaiacol is the carbonate in cachets. This salt is a white powder, which is free from the disagreeable odor, taste, and irritating effects on the stomach of guaiacol itself. In the intestine it is slowly split up into guaiacol and carbonic acid gas. At first from five to ten grains of the carbonate of guaiacol should be given three times a day, and the dose should be increased by one to two grains each week until from 15 to 20 grains are being taken in each dose. It is essential that this treatment should be continued for at least twelve months. The beneficial effects of the guaiacol are very much increased by administering at the same time a mixture containing potassium iodide; the depressing effect of the iodide should be counteracted by its combination with tonics, of which perhaps nux vomica and the compound glycerophosphate syrup are the most useful. For the preservation of the latter, and to render the mixture palatable, spirit of chloroform and peppermint water may be employed. As regards the dosage of the iodide, the author's experience is that patients usually tolerate full doses from the beginning, and are much less liable to develop the distressing symptoms of "iodism" than if they are initially put on small doses. His usual practice now is to start them at once on 10-grain doses of the potassium iodide three times a day, and to continue this amount if it does not disagree.

The treatment just detailed is, in the author's experience, incomparably superior to the prolonged treatment for two, three, or more years of such cases with small doses of arsenic and iron, a method of treatment which still has many supporters.

After the treatment with guaiacol carbonate and potassium iodide of a very large number of cases of rheumatoid arthritis, the author is convinced that it is capable, in the great majority of cases, of arresting the disease, and so of preventing the frightful suffering connected with movements of the affected joints, a condition which is so common in cases of unrelieved rheumatoid arthritis. If the treatment is commenced in the comparatively early stages of the disease, then recovery with very little deformity may result, but even if after arrest of the disease much deformity results, very considerable mobility of the joints may be promoted by baths, superheated air, massage, and passive movements. It is frequently remarkable to find after such treatment what an amount of mobility and capacity for usefulness has been restored to joints which have been left in a severely deformed but quiescent condition.

The treatment that has just been described is especially intended for the chronic and subacute forms of rheumatoid arthritis, but for the treatment of the acute form of the disease during the pyrexial period quinine is far and away the best drug.

THE EFFECTS OF TOBACCO UPON THE THROAT.

LANGMAID states in the *Boston Medical and Surgical Journal* of June 15, 1905, that clinical evidence is sufficient to prove an action of tobacco on the throat. The smoker is never quite free from a form of nasopharyngitis, and sooner or later a mild form of tracheitis appears and becomes chronic. The nasopharyngitis may reveal itself by the necessity for frequent "hemming," or, as frequently occurs, by a morning cough, which in some cases is so severe as to cause vomiting, which is frequently ascribed to "catarrh of the stomach."

Not infrequently when the nasopharyngitis becomes acute, as it frequently does in winter, a most distressing night cough appears, convulsive in its nature, and resembling the constantly repeated cough of the child with nasopharyngeal adenoma. The cause for such a cough is not suspected by physician or patient, and demulcent medicines having been found inefficacious resort is had to opiates, with

the result of destroying the patient's digestion, and the usual systemic disturbances follow.

The author has frequently found that the cough would quickly disappear if smoking was discontinued, internal medication being limited to the giving of a placebo, but if the smoking was continued, or not materially lessened, the cough would continue, or, with intermissions, return during a period of months.

But he calls attention especially to the effect of tobacco upon the throat and voice of singers. He has refused for many years to treat the throat of singers and public speakers when smoking was not discontinued, since he believes that treatment which otherwise would be efficacious would be of little avail.

The specialist is frequently consulted by a singer or actor for hoarseness which prevents a public appearance. The pharynx and larynx are hyperemic, the secretion of glutinous mucus is excessive, but the real reason for altered quality of voice or its extinction is found in the paresis of the intrinsic laryngeal muscles. Either one or both vocal bands are relaxed, and the upper register of the voice is lost. In such cases a few days or hours of rest of the voice and the treatment which any skilled specialist would apply would be sufficient to restore the voice to a working condition. But the patient must be told that unless he ceases to smoke relief will be delayed. If it should be said that such a condition may result from overuse of the voice or from climate, or both, the author would certainly agree, but would yet maintain that smoking not only helps largely to provoke such attacks, but that it retards the restoration of the vocal ability.

He believes, then, that tobacco smoking is not only harmful to the throat as a direct irritant, but that it produces vasomotor disturbances of the pharyngeal mucous membrane by its poisonous effects upon the nervous system.

The case can be materially aided by stopping smoking for a time. The author has found this method of treatment to be productive of good results in many cases.

With regard to the effect of tobacco upon singers' voices, he has known several singers who have tried to smoke when the throat was affected, but who were obliged to give it up. The author

is willing to admit, however, that deep voices, such as baritone, bass, or contralto, are not so easily affected by tobacco smoke as are the higher voices, viz., the tenor and soprano, since the beauty of tone in the lower-pitched voices does not depend, for reasons foreign to the scope of this paper, upon the absolute integrity of the vocal bands.

A THERAPEUTIC NOTE: COLD AFFUSION IN DELIRIUM TREMENS.

Sir WILLIAM BROADBENT in the *British Medical Journal* for July, 1905, reports a case of delirium tremens to which he was called by Dr. Lenton Heath, which gave him the opportunity of recommending a mode of treatment he employed repeatedly many years since, and always with immediate success, and although the writer described it, it does not seem to have found its way into the text-books. The practice is cold affusion, carried out in the following way: The patient is stripped naked and lies on a blanket over a waterproof sheet. A copious supply of ice-cold water is provided, and a large bath sponge dripping with the iced water is dashed violently on the face, neck, chest, and body as rapidly as possible. He is then rubbed dry with a rough towel, and the process is repeated a second and third time. The patient is now turned over, and the wet sponge is dashed on the back of the head and down the whole length of the spine two or three times, vigorous friction with a bath towel being employed between the cold water attacks. By the time the patient is dried and made comfortable he will be fast asleep.

Dr. Lenton Heath's patient was a young man of about thirty, addicted to alcohol. Under his influence and treatment he had abstained for some time, but had then given way, and after a week of continuous indiscriminate drinking had delirium tremens, or, perhaps more strictly, delirium ebriscum, since, with characteristic hallucinations, he was more violent and had less tremor than is usual in delirium tremens proper. A complication which almost precluded recourse to opiates or sedatives was the presence of a large amount of albumin in the urine.

The treatment was effectually carried out by Dr. Heath, with the anticipated result of sound, refreshing sleep and

speedy recovery. The albuminuria gradually disappeared.

The author has employed cold affusion in this way even when there was extensive pneumonia with the delirium tremens. When the patient wakes up the tremor is gone, the relaxed, perspiring skin is warm and dry, and the weak, flickering pulse has recovered tone.

In rheumatic and enteric hyperpyrexia the effect of the cold bath is not simply due to the abstraction of heat. The graduated bath has much less effect than the plunge into cold water, and may have no effect at all unless cold affusion is applied to the head. It is not easy in domestic practice to give a cold bath in these cases, and may be impossible. Affusions by means of a bath sponge followed up by a wet sheet may meet the emergency.

BROWN TAIL MOTH ERUPTION.

TOWLE has been asked so many times recently in regard to the treatment of the brown tail moth eruption that a letter which he sends to the *Boston Medical and Surgical Journal*, July 6, 1905, seems the best way of answering. In general it may be said that the eruption should be treated on the same lines as urticaria—that is, by antipruritic and soothing applications. As a rule, lotions give greater relief than ointments. It is necessary also that the lotion should be applied frequently and freely, and the sooner its use is begun the sooner relief follows. It is important that the patient should restrain his desire to scratch as much as possible, for by scratching he not only aggravates the attack, but also delays relief. The writer has seen an attack which promised to be severe allayed in a few hours by prompt applications and an entire avoidance of scratching. In particular, he asserts that any antipruritic, of which there are many, may be employed. To mention only a few, one of the best is: Carbolic acid, 2 to 4 parts; zinc oxide, 15 parts; aqua calcis, 500 parts. Mix, shake and daub on with a soft cloth. Chloral hydrate 4 parts, carbolic acid 2 parts, aqua camphora and alcohol of each 125 parts, applied in the same way, is also effective. In addition it may be mentioned that alcohol, menthol, thymol, hamamelis, and a host of

other drugs, chiefly antiseptics, have been used. In severe cases alkaline and bran baths will be found of great service.

NOTE ON THE REPORT OF THE RAW MEAT TREATMENT ON THE PERCENTAGE INCIDENCE OF HEMOPTYSIS IN PULMONARY TUBERCULOSIS.

In describing the results of this plan of treatment in the *London Practitioner* for July, 1905, MEARS tells us that hemorrhage occurred in only two of the 114 cases received after October, 1900, giving 1.7 as the percentage incidence of hemoptysis during treatment in all cases admitted during a period of three years. Each of these two patients had severe recurrent attacks before admission. The hemorrhages which occurred during treatment were in small quantity, and were the direct result of overexertion.

That this almost complete immunity from hemoptysis during a period of three years is not a mere coincidence is sufficiently proved by the high percentage incidence of previous hemoptysis, in many cases recurrent. It should perhaps be stated that the cases embraced every variety, from slight lesion at one apex to extensive disease of both lungs, with cavity formation and secondary infection of other organs.

Summary:		Percentage incidence of hemoptysis.
Total cases treated from 1899 to 1903.	152	
" with hemoptysis before treatment	80	19.7
" with hemoptysis after treatment	10	6.5
" with hemoptysis during treatment	15	3.3
" treated rigidly on raw meat (1900-1903)	114	
" of hemoptysis on raw meat treatment	2	1.7

These results would seem to bear witness to the practical value of raw meat as a therapeutic agent in the prevention of hemoptysis during the treatment of pulmonary tuberculosis.

The years 1899 to 1903 only are included in the above résumé, because sufficient time has elapsed since then to give the after-history of the patients a definite statistical value. This has been followed in every case up to date. Cases treated subsequent to October, 1903, are therefore excluded, but so far as the period of observation is concerned the figures are equally interesting.

DIARRHEA.

Editorially the *London Practitioner* for July, 1905, says that in treating diarrhea it is necessary to keep the patient warm in bed, and the first consideration must be the removal, if possible, of the cause. With this in view, hydrargyrum cum creta may be given in doses varying from one to three grains, or perhaps the safest of all remedies is castor oil, which begins to act in the duodenum, and so clears the bowel throughout. One disadvantage of this, however, is that a child is very apt to vomit it. Still, the *mistura olei ricini* of the B. P., given in doses of one to two fluidounces as a draught, is not unpleasant.

The following is a useful mixture, as the astringent action of the rhubarb comes into force after the purgation:

℞ Pulveris rhei, gr. iv;
Sodii bicarbonatis, gr. x;
Syrupi zingiberis, 3ss;
Aq. menth. pip., ad f3j.

Misce. Ft. mist.

Two tablespoonfuls to be taken three times daily.

If the cause of the diarrhea cannot be removed, its effects to a large extent may be prevented by the following mixture:

℞ Bismuthi subnitrat, gr. xx;
Pulveris tragacanthæ co., gr. xx;
Spiritus chloroformi, m. xx;
Aq. menth. pip., ad f3j.

Misce. Ft. mist.

Dr. Burney Yeo recommends the following mixture for adults:

℞ Bismuthi oxychloridi, 80 grains;
Pulv. cretæ aromatici, 160 grains;
Sodii bicarbonatis, 40 grains;
Spiritus ammoniæ aromat., 4 drachms;
Mucilaginis tragacanthæ, 2 ounces;
Aque chloroformi, 2 ounces;
Aq. cinnam., ad 8 ounces.

Misce. Ft. mist.

Two tablespoonfuls to be taken every two or three hours until the diarrhea stops.

Should the diarrhea continue after the cause has been removed, constringents and neuromuscular sedatives to the intestinal wall should be employed, such as *pulvis kino compositus*, which contains 1 grain of opium in 20, and may be given in 10-grain doses. The following also may be found useful:

℞ Acidi sulphurici diluti, m. xx;
Tincturæ opii, m. vj;
Spiritus chloroformi, m. xv;
Aque camph., ad f3j.

Misce. Ft. mist.

Pulvis cretæ aromaticus c. opio in 10-

to 30-grain doses is a valuable remedy in ordinary cases of slight diarrhea.

The diet must be carefully regulated. The best food undoubtedly is milk diluted with soda water, or a little arrowroot, sago, tapioca, or ground rice and milk. In the dyspeptic diarrheas of artificially-fed infants Professor Osler recommends the following food: "The whites of two or three eggs stirred in a pint of water, and a teaspoonful of brandy and a little salt mixed with it." This is both stimulating and nourishing. In very young children *liquor calcis* is a valuable remedy. All solids should be withheld, and no hot drinks allowed.

Should the patient be much collapsed, brandy or champagne must be given cold and in small doses. Port wine and water, in small but frequent doses, is also recommended as a beverage.

In cholera infantum the stomach and large bowel should be irrigated with lukewarm water, and if the collapse is extreme, hypodermic injections of .9 per cent sodium chloride solution may be used. The effect of this is to keep up the blood-pressure of the infant.

THE IMPROVEMENT IN THE TREATMENT OF DIABETES MELLITUS.

In the course of a long article on this subject in the *Boston Medical and Surgical Journal* of July 6, 1905, JOSLIN speaks of several plans of treatment and of the milk cure. It has been known for a long time that in rare instances a pure milk diet is useful in diabetes. Donkin was the first to call attention to this fact. One striking case of this sort came to the author's attention. The patient on an exclusive diet, containing about 150 grammes of milk-sugar, excreted practically no more sugar than when on a diet free from carbohydrates. But cases like this are most rare and are apt to do much harm, for they give rise to the impression that a milk diet is good for all cases. The explanation of these cases has given rise to much speculation. An exclusive milk diet is to a greater or less extent an undernutrition diet, and as has been said, such a diet lowers the glycosuria. This can be but part of the reason. Another reason lies in the fact that a single variety of carbohydrate is better borne than is an equivalent quantity of different

carbohydrates—i.e., 100 grammes of carbohydrates in the form of milk is better borne than 50 grammes of milk-sugar and 50 grammes of starch. But this again does not hold good for all diabetics. It is well, therefore, to bear in mind that occasionally a patient may have a remarkable tolerance for milk, but a universal milk treatment for diabetes is absurd. The recent talk about milk has given rise to the idea that in the modern treatment of diabetes the carbohydrates are less restricted. This is actually true, but it is absolutely not true in the sense that the modern treatment is less vigorous and active in striving to keep patients sugar-free.

Potato Cure.—Mossé's potato cure owes its virtues probably in part to the same principle, the administration of all the carbohydrates in one form, and also to the fact that potatoes contain but one-third as much carbohydrates as bread. Mossé, however, ascribes its action to the water and potassium salts in the potatoes. In the cure, 1500 grammes potatoes are given to the patient for a period of several weeks, instead of bread. The number of men who favor the potato cure is far less than the number who favor the use of milk.

Oatmeal Cure.—V. Noorden's oatmeal cure depends definitely on the principle that carbohydrates in one form will cause less sugar to be excreted than when the same amount is given in several varieties. The total quantity of albumin is also kept low. The author distinctly says that the oatmeal cure does not work well in all cases, and publishes cases which support this view. Like the milk and potato cure, its action must be closely watched. It is far less agreeable than the two previously mentioned modes of treatment, and cannot be continued over two weeks at the most. It does not promote tolerance for other kinds of carbohydrates. Two hundred and fifty grammes oats is cooked with water and 100 grammes albumin, and into this mixture 300 grammes of butter is worked. A soup is thus made, and this is taken by the patient every two hours. Brandy, wine, and black coffee are also allowed. It is plain, however, that the diet is not a palatable one, and one not likely to be much employed. But there is something that oatmeal suggests which will be found use-

ful. One heaping tablespoon of dry Quaker oats (14 grammes) contains about one-third of an ounce of carbohydrates. When cooked the tablespoonful swells to half again the size. A tablespoonful of cooked oatmeal therefore contains but a very small amount of carbohydrates (7 grammes or $\frac{1}{4}$ ounce), and so is available if the patient has gained much of any tolerance. As breakfast is one of the hard meals for diabetics, this small quantity of oatmeal is a welcome addition.

To return to the patient who has become sugar-free, and whose tolerance has become equal to half a pint of cream, the author suggests adding a tablespoonful of milk day by day to a diet, the total caloric value of which is low, and the amount of albumin not over 100 grammes, instead of attempting milk, potato, or oatmeal cures. By this means the milk and cream in favorable cases in two or three months may reach one quart. If the tolerance has grown to this extent, it will probably be found perfectly safe then to allow half a grapefruit—a most welcome addition. A recent analysis of grapefruit by the author's assistant, Dr. Charles L. Overlander, showed it to contain 4.5 per cent sugar, while sweet and sour oranges contained respectively 9 and 10 per cent. If this is tolerated, the next most useful addition would be the tablespoonful of oatmeal. But a diet as liberal as this cannot be considered much of a hardship. So large a quantity of milk allows infinite variety. In such cases, even for many months, it is a good plan from many points of view to prescribe a nearly strict diabetic diet for one day each week.

The Treatment of Coma.—The treatment of coma lies in its prevention. Mention has already been made of the danger in a sudden change from an unrestricted to a rigid diabetic diet. It is a safe rule to always proceed slowly in any diabetic changes when the urine shows the ferric chloride reaction, and at the same time to give one teaspoonful of bicarbonate of soda three times a day. If the patient's spirits remain good, and there is neither restlessness nor dulness, and the quantity of urine diminishes gradually as the carbohydrates are lowered, little fear need be entertained even if the diacetic acid reaction is present to a marked degree.

At the first untoward sign, however,

let up in the diet, and add to it a pint of milk, which should be taken in small quantities. At the same time favor the elimination of the acids by giving water with the milk, or alone, or water with bicarbonate of soda. Unless there is immediate improvement in the symptoms, a diet composed exclusively of milk in one form or another, or gruel, must be adopted temporarily. At the outset bicarbonate of soda can be given in one teaspoonful doses each hour, but very soon this interval must be lengthened or the dose decreased as the stomach will rebel. Thirst is apt to be marked, and great care must be used not to gratify it to such an extent that the stomach becomes overloaded, and dilatation and paresis of that organ occur. It is comparatively easy to have the soda and liquids taken by the patient; the difficulty lies in their retention, and it is far better to err on the side of giving too little than too much. Great caution should be exercised in the administration of cathartics. The soda is only too apt of itself to cause diarrhea, and the author has come to rely on enemata as the safest procedure.

THE ACTION OF ADRENALIN.

Acting for the Scientific Grants Commission of the British Medical Association, ELLIOTT has studied this remarkable substance, and reports concerning it as follows. He believes that adrenalin, apart from its general poisonous properties that are manifested when large quantities are introduced into an animal, has quite a specific power of stimulating plain muscles and gland cells. Attention to this fact was first drawn definitely by Langley. He pointed out that only those plain muscles are stimulated by adrenalin which are supplied with sympathetic nerves, and that broadly the reaction is similar to that caused by electrical excitation of these nerves. The work referred to in this respect establishes the generalization.

Stimulant Action of Adrenalin.—Law governing the reaction of plain muscle to adrenalin. Gaskell gave the first broad classification of the nerves efferent from the brain and spinal cord. He showed that while the motor nerves to striped muscles connected with the skeleton issue in all the anterior roots, those to the un-

striped muscle of the blood-vessels and viscera and to gland cells do not flow out in a continuous series of anterior roots down the length of the spinal cord, but in three divisions, which are separated one from the other by the nerve roots of the fore and hind limb plexuses. These visceral nerves all bear ganglia on their course from spinal cord to peripheral tissue. Langley has introduced a fresh nomenclature, according to which the entire group of ganglionated visceral nerves is styled the autonomic system; in this there are the three subdivisions of the cervicocranial, the thoracolumbar, and the sacral root outflows. The thoracolumbar root outflow is also called the sympathetic. Plain muscle is often innervated from two of these sources, and then the double innervation is antagonistic. In all cases the reaction to adrenalin is found to be identical with that to electrical stimulation of the sympathetic (thoracolumbar) nerves.

Bladder. The bladder of the cat is inhibited both when adrenalin is injected into the circulation and when applied directly to the bladder wall. But the urethra—that is, the sphincter of the bladder—is at the same time powerfully constricted. Excitation of the hypogastric nerves has the same results. Similar movements are seen in the bladder and urethra of the monkey (*Macacus rhesus*). But the bladder in the dog and the rabbit is unaffected by adrenalin and by the hypogastric nerves; and that of the ferret and the goat is thrown into complete contraction by both these means.

Thus all three possibilities of response to adrenalin are instanced in the various types of mammalian bladder, and in each in strict accord with the nature of the sympathetic innervation. All these bladders, of course, also receive motor nerves from the sacral visceral outflow, and the urethra inhibitory nerves.

Heart. In every vertebrate examined the beat of the auricles is both augmented and accelerated. Overdistention of the heart chambers in the face of the great rise of blood-pressure may, however, give rise to reflex slowing and so mask the true action of adrenalin. But whereas the ventricle of the mammal is stimulated to greater beats, that of the tortoise and of the pigeon is unaffected. This agrees identically with the differing extent of

sympathetic innervation in the different species. The coronary vessels in the cat are slightly dilated by the drug, though arteries in other organs are constricted.

Alimentary canal. The stomach is inhibited. This, too, despite the counter-statement of Page May, is proved to be the result of stimulating the sympathetic nerves in the cat. In mammals the entire length of small and large intestine is inhibited by adrenalin, except where it tightens with a power, varying in different species, the grip of the pyloric, ileocolic, and internal anal sphincter. The parallel action of adrenalin and sympathetic nerves holds, though the scheme of innervation alters, when one passes to study the intestines of the bird and amphibian. The proximal part of the pigeon's small intestine is thrown into contraction by adrenalin. Dixon has shown that the same is the case with the frog's stomach. As in the mammal, the cæca and colon of the bird are relaxed.

Apparent Exceptions.—Chief of these are the skin muscles moving the hairs and the dilator pupillæ. The hairs down a cat's back and tail rise stiffly when their nerves are stimulated; their motion is but slight when adrenalin is injected. In other animals the corresponding movement is greater. The hairs on the tail of a mongoose are very readily excited by adrenalin. It would seem, then, that the delicacy of reaction to adrenalin varies directly with the functional use of the muscle by the animal in the reflexes of daily life. Kipling has made familiar the fact that the mongoose, Rikki-Tikki Tavi, expresses every emotion by fluffing out its tail. A similar explanation is applicable to the dilatation of the pupil. This is readily produced in the cat; in the dog, rabbit, and goat it is generally feeble and overpowered by the constriction caused by central stimulation of the third nucleus. Though the excitability by adrenalin varies with functional use, there is not a proportional variation in the direct electrical excitability of the sympathetic nerves to the muscle. So the following law seems to be true for all vertebrates: That the reaction to adrenalin of any plain muscle in the body is of a similar character to that following excitation of the sympathetic nerves supplying that muscle, and the extent of the reaction varies directly with the frequency of

normal physiological impulses received by the muscle in life through the sympathetic nerves.

A TEST FOR PANCREATIC ACTIVITY.

If 60 grains of salol be given in cachets, in divided doses, during twenty-four hours, carbolic acid will appear in the urine; this is due to the fact that the salol is broken up by the alkaline pancreatic juice in the small intestine. If, however, no pancreatic juice makes its way into the duodenum, the salol remains unchanged, and no carbolic acid can be detected in the urine. The most convenient tests for carbolic acid in the urine are: (1) Add to the urine which contains the carbolic acid a few drops of liquor ferri perchloridi, a violet color is produced. (2) Add to the urine a few drops of bromine water, a yellow crystalline precipitate of tri-bromo-phenol ($C_6H_2Br_2OH$) is produced. (3) If a small quantity of bleaching powder and a little ammonia are added to the urine, on heating the mixture a blue color is produced. (4) If Millon's reagent (acid nitrate of mercury) be added, a bright-red color is produced. The importance of this test is obvious, as it enables us to diagnose obstruction to the outpouring of the pancreatic juice into the duodenum.—*The Practitioner*, July, 1905.

THE TREATMENT OF CHRONIC CARDIAC DISEASE.

The *Clinical Journal* of July 12, 1905, contains an article by WETHERED in which he gives much excellent advice. For the relief of cardiac distress he states that a mixture of equal portions of spirits of ammonia and spirit of ether, twenty minims of each, is perhaps the best, with the addition of a few drops of liquor strychninæ. Cardiac tonics, such as digitalis, strophanthus, strychnine, are indicated if the dyspnea is an urgent condition; and, of course, it behooves us, when the patient suffers from dyspnea, to watch the condition of the lungs to see whether râles occur at the base, indicating pulmonary congestion. With regard to palpitation, if this only occurs after exertion the cardiac tonics and the mechanical exercises may be employed.

Another useful prescription, if the symptom is troublesome, is the bromide of sodium in ten-grain doses, *nux vomica*, or *digitalis*. But here a difficulty arises, namely, the diagnosis between functional palpitation and palpitation due to heart disease.

Without going further into this matter, the author refers to one of the main points upon which we must rely in this differential diagnosis, which is the size of the heart. If the heart is of the normal size, as shown by percussion, and there are no murmurs, that is a strong point in favor of the palpitation being functional rather than due to heart disease. With regard to dropsy, meaning thereby ascites and edema of the extremities, here again cardiac tonics, together with vasodilators, are useful, and if there is a large amount of fluid in either the legs or in the abdomen, paracentesis is necessary, employing Southey's tubes in the case of the abdomen, and Southey's tubes or incisions in the legs. If edema of the legs be present the author prefers Southey's tubes, but there are one or two difficulties in connection with their use. When Southey's tubes are put into the legs the first time they usually act well, but if the tubes have been inserted into the same leg two or three times he has found their action uncertain; there seems to be some adhesions formed in the skin, and it is a common event for the tubes not to run so well as they did. And if the pressure is very extreme, after the tubes are removed there are small holes left, and the fluid may continue for a long time to run. The running produces a very irritating condition of the skin, and gives one the suspicion that the tubes were not quite clean. A very good thing for this is to smear the foot or leg with a mixture consisting of equal parts of ointment of zinc and of boracic ointment, which decreases the tendency to inflammation. The author has found that the baths at Nauheim had a good effect in reducing ascites and the swelling of the legs. Some patients came to Nauheim with enormously swollen legs, but after a few baths the edema decreases very greatly.

With regard to the other less appreciated symptoms, the apprehensiveness and the restlessness, these are often very troublesome, and are particularly painful

to the patient, as well as difficult to treat. An easy and regular circulation through the brain is accompanied by a sense of security and comfort, but when the cerebral circulation is insufficient certain nervous manifestations are likely to ensue. Here, again, the employment of vasodilators may be very useful, accompanied by a certain amount of moral treatment, which tends to reassure the patient and calm his fears. The selection of a judicious nurse is a great point, especially if she be possessed of that rare quality, a "calm, hushed presence, bringing rest;" this will often do more to relieve these symptoms than the use of drugs. Patients with heart disease are apt to be very depressed, and very introspective, and some of these symptoms we find great difficulty in relieving.

Sleeplessness is another prominent symptom of cardiac failure which is sometimes difficult to overcome. To procure sleep may be a matter of very great difficulty. If the patient can be got to sleep, relief generally follows. The nurse here may be of the greatest assistance. Various plans, such as sponging the patient at night or placing a handkerchief over the eyes, may help us. A dose of strychnine at night, one-thirtieth grain given hypodermically, may bring about sleep by regulating the heart's action. Sometimes, however, it produces restlessness. In most cases we may resort to hypnotics, and the author places as most satisfactory of these chloral-amide. It is perfectly safe. He has given it for upwards of eight months nightly, increasing to 72 grains a night without producing any harm. Commencing with thirty grains a night will be found a satisfactory mode of producing sleep. Paraldehyde, 1 to 2 drachms, often proves useful; and if these fail, then we shall probably have to resort either to morphine or to opium. The author always does this with the greatest regret, and he thinks there is distinct danger in doing so if there is much congestion of the lungs. He has occasionally seen morphine and opium, given to cases which have had a large amount of pulmonary edema, produce very serious symptoms, especially if it is accompanied by albuminuria. On the other hand, cases are reported in the medical journals from time to time in which great relief

has been secured by the hypodermic injection of morphine.

Then, finally, with regard to indigestion. The indigestion which is produced by improper circulation through the stomach is very difficult to control. We have first to do what we can to improve the circulation. There is a French maxim, "The patient who has something wrong with the stomach complains of the heart, and he who has something wrong with the heart complains of the stomach." Therefore a good many patients come to us complaining of indigestion who are really suffering from some form of chronic heart disease. Cardiac tonics, more particularly nux vomica, may help us again. Here the diet must be light and the amount of vegetables strictly limited. Various preparations, especially pepsin, the author finds extremely useful in cases of this kind. The preparation known as taka-diastase is sometimes valuable.

TUBERCULAR STENOSIS OF THE PYLORUS.

The last portion of the article by RICARD and CHEVRIER. (*Revue de Chirurgie*, xxv, July 10, 1905) gives the indications and methods of operation in this lesion.

The only treatment is palliative, as complete excision is never possible on account of involvement of other organs. The operation must be short, and the only one which fulfils the indications is gastro-enterostomy. The postoperative prognosis is very grave, as stenosis does not occur until late in the course of the disease.

PUERPERAL PYEMIA—OPERATIVE TREATMENT.

The article of BUMM (*Berliner klinische Wochenschrift*, July 3, 1905) deals mainly with the question of ligation and excision of the veins when these are the centers of infection.

In all cases of fever and chills in which the uterus seems normal the veins must be examined, and a tenderness or enlargement of the ligamentum infundibulopelvica or lig. lata points to this condition and demands immediate operation. In acute phlebitis the operation should be

performed extraperitoneally through a lateral incision, but as this does not give free access the anterior incision is preferable in chronic cases. The usual operation is excision of the vena spermatica and ligation of the vena hypogastrica. The latter cannot be excised without touching the uterus, and this must be carefully avoided. Above the uterus must not be excised. If abscess follows from leaving the hypogastric vein in place, it must be opened later.

TECHNIQUE OF CLOSING ABDOMINAL INCISION.

More rapid and accurate closure is the purpose of an instrument described by BERNHARD (*Centralblatt für Chirurgie*, July 1, 1905). It is a tenaculum forceps provided with a shoulder near each point which prevents its slipping too deep in the tissues. The edges of the wound are brought together and held in place by a series of these forceps until the sewing is complete. They may be used for each layer of the abdominal wall after laparotomy. By means of these forceps pleats in the skin and tissues are entirely avoided, an assistant is dispensed with, and time is saved.

FRACTURE OF THE HIP—EXCISION OF THE HEAD.

Being convinced that union of complete fracture of the surgical neck of the femur was impossible, excision of the head was performed in seven cases reported by ITO and ASAHIRA (*Deutsche Zeitschrift für Chirurgie*, Bd. lxxviii, Heft 1). One case died of hypostatic pneumonia, although operated on under spinal anesthesia; the other six had good functional result.

To prove the incurability of this fracture the authors made a number of experiments on dogs. In a first series the neck was cut through incompletely, in a second series it was cut through and immediately sewed together with silver wire, and in a third series it was cut through and no dressing was applied. The result in the first series was union in all but one case, but in the other series there was no union at all; the animals of the second series did not have any better function than those of the third.

CLEANSING THE UMBILICUS BEFORE OPERATION.

The difficulty of making the navel clean is emphasized by SANITER (*Centralblatt für Gynäkologie*, July 1, 1905), who always cleanses it before his operations by grasping the skin at the bottom of the cavity in a pair of artery forceps, everting it, and drawing it out until the skin is smooth. It can then be scrubbed thoroughly with an ordinary brush.

CARCINOMA UTERI—OPERATIVE TREATMENT.

The article of RANNENSTIEB (*Berliner klinische Wochenschrift*, July 3, 1905) is a comparison of the abdominal and vaginal operations. Each of these operations has its proper limits, and the difficulty is to define these.

The general rule is that the more malignant tumors should be operated on from above and the less malignant from below. Tumors involving the cervix spread more rapidly than those of the body, and must always be operated on abdominally. Cancers in young persons are especially malignant, as are the very soft tumors. The only tumor of the portio that can safely be operated on from below is the hard, ulcerated, squamous epithelioma. Thus all cancers must be operated on from above except hard tumors of the body and portio.

DOUBLE OVARIOTOMY—PREVENTION OF BAD RESULTS.

The retention of a small fragment of ovarian tissue is the aim of ZACHARIAS (*Centralblatt für Gynäkologie*, Aug. 19, 1905).

When both ovaries are removed for benign cysts or tumors or inflammatory conditions, he advises that a piece of the cortex of the less involved ovary be separated from the growth which is removed and left in connection with the hilus. This piece should be about 1 millimeter thick and 25 to 50 millimeters in diameter, and should be drawn together by fine catgut into a mass or cylinder attached to the broad ligament.

Even this small portion of ovarian substance is sufficient to prevent the bad psychical and physical effects which so often follow complete castration.

DISLOCATION OF THE MUSCULOSPIRAL NERVE IN FRACTURES OF THE SHAFT OF THE HUMERUS.

The most important point in the article of FESSLER (*Deutsche Zeitschrift für Chirurgie*, Bd. lxxviii, Heft 1) is his emphasis on the fact that paralysis following such fractures is due to overextension of the nerve across the angle of fracture. There are three forms of paralysis accompanying fracture of the humerus: (1) Those due to the trauma which caused the fracture, or to injury from sharp fragments of bone; (2) those due to stretching of the nerve and consequent loss of function; (3) those due to secondary causes, pressure from callus or fibrous tissue, processes of necrosis, etc. Of these forms the second is the most frequent, but is apt to be mistaken for the third, as it begins a few days after the fracture, while the limb is bandaged, and generally passes unnoticed until the dressing is removed.

Sensation and motion should therefore be tested carefully every few days, and it should be mentioned that in fractures of the upper part of the humerus sensation is particularly affected, and in those of the lower part motion. There may be motor paralysis with no sensory disturbance. The nerve is ordinarily stretched over the upper end of the lower fragment, and if any sign of paralysis is noted a dressing should be applied which will bring this into place. For this purpose a pulley extension apparatus with a ten-pound weight may be applied to the elbow flexed at right angles to stretch the arm. If necessary another weight may be attached to a cord which runs through a pulley on the opposite side of the bed, across the body, and is attached to loops around the arm above or below the place of fracture.

Pressure at the point of fracture must be carefully avoided in all cases. The extension dressing may be replaced by a fenestrated plaster cast after eight to fourteen days. If the paralysis lasts as much as three to six weeks after the fracture, the nerve should be cut down on and examined to determine the cause. If necessary a piece of nerve should be resected, and if union of the bone is not good a piece of the humerus may be resected also to enable the ends of the nerve to meet.

COLOSTOMY WITH A VALVE—EXPERIMENTAL STUDY.

A couple of experiments on dogs were made by SILBERMARK and DOMENY (*Deutsche Zeitschrift für Chirurgie*, Bd. lxxviii, Heft 1) to prove the permanency of the valve made according to Mosetig-Moorhof, whose operation consists in partial ligation of the colon below the diseased part with a large silk thread, suture of the walls above and below the constriction, and colostomy so planned as to switch out the seat of disease. A valve is thus formed with an opening large enough to permit discharge of secretions from the excluded bowel.

Objection having been made that the silk would cut through or give way, the authors performed the operation on two dogs, and found that after two years the valve was still present and only a small opening in the center existed.

TUBERCULAR SPONDYLITIS—OPERATIVE TREATMENT.

The indications for laminectomy in tubercular disease of the spine are summed up as follows by SULTAN (*Deutsche Zeitschrift für Chirurgie*, Bd. lxxviii, Heft 1):

When isolated caries of the arch is present, when the acute process has ceased, when the patient is not older than twenty-five years, and when the lesion is caused by a stenosis of the spinal canal, high position of the lesion and paralysis of bladder or rectum make operation more imperative, but paralysis without involvement of bladder is rather a contraindication, as paralysis of bladder has been known to follow operation. It is not possible to determine beforehand whether the lesion of the cord is irreparable.

As regards prognosis Chipault is right in saying that all cases may be cured unless there is disturbance of respiration, extreme change in the cord from fracture of the carious vertebræ, or myelitis tuberculosa; the last, however, is extremely rare. The prognosis is better the younger the patient and the lower the lesion.

As regards technique Sultan believes in making a very thorough examination of the anterior wall of the canal, cutting the roots of the spinal nerves, if neces-

sary, to displace the cord. Sufficient bone should be removed to certainly relieve all pressure, and the periosteum should be removed also. The muscles of the back protect the cord amply. New-formed bone from periosteum left behind may press on the cord and require a second operation.

THE EFFECT OF X-RAYS ON THE BONE-MARROW.

The effects noted by HEINEKE (*Deutsche Zeitschrift für Chirurgie*, Bd. lxxviii, Heft 1) consisted mainly in destruction of the essential cells, and agreed therefore with the effect on lymph glands already described.

A large number of experiments were performed under various conditions, but the effects only varied in degree. The susceptibility of the bone-marrow was found to be much more variable than that of the lymph glands, even different bones of the same animal being found often in very different stages of degeneration. Guinea-pigs were used in all the experiments.

Animals exposed for two hours showed no change if killed immediately, but one hour later alteration had begun, and two hours later was quite marked. The alteration began as a disintegration of the nuclei of the lymphocytes, followed by those of cells without granules and the giant cells. Then the nuclei of the eosinophiles and mast cells disintegrated, and last of all the neutrophiles. The greatest amount of necrotic tissue is seen after ten to twelve hours, and the smallest number of cells after five to six days. The necrotic tissue has almost disappeared after three days.

About half the animals exposed for ten hours live, and in them regeneration begins twelve to fourteen days after exposure and is completed in three to four weeks. The neutrophiles regenerate first, followed quickly by the lymphocytes and giant cells. The eosinophiles and mast cells are not found in normal proportion until a month after exposure.

The experiments favor the view that the action of x-rays is entirely mechanical and not due to formation of toxins, and also favor a mechanical explanation of their action in leukemia and pseudo-leukemia, in all forms of which exposure

is apt to be followed by temporary relief but never by permanent cure. The small round-cell sarcoma is also caused to degenerate by the action of x -rays, but terminal results are not satisfactory. It seems certain that lymphocytes are destroyed in the circulating blood as well as in the lymphoid tissue.

TUBERCULOSIS OF CERVICAL LYMPH GLANDS.

More extensive operation is advised by MOST (*Centralblatt für Chirurgie*, July 29, 1905), who recommends that in all cases requiring operative treatment the chain of superficial glands should first be removed, and then the surgeon should separate the facial vein and the internal jugular and examine the retropharyngeal glands, removing them if they are enlarged or inflamed.

SUBDIAPHRAGMATIC TRANSPERITONEAL MASSAGE OF THE HEART AS A MEANS OF RESUSCITATION.

GRAY (*Lancet*, Aug. 19, 1905) reports the case of a female aged fifty-five who had for several months been suffering from laryngeal obstruction with consequent marked dyspnea and cyanosis. The exertion of a 30-mile journey to the hospital greatly aggravated the condition, and a few hours after admission the report was made to the author that the patient was dead. On entering the ward he found her deeply cyanosed and heard a feeble inspiratory effort. High tracheotomy was done with a penknife, and the lips of the wound held open with hairpins. Artificial respiration was begun, but only a few spontaneous breaths were taken by the patient. There was no radial pulse or cardiac impulse; no cardiac sounds could be heard; the patient was pallid, all reflexes had gone, the pupils were widely dilated, lips pale, and the eyes had a glassy look. Four or five minutes after the tracheotomy the abdomen was opened in the middle line just below the xiphoid with the penknife, two fingers were inserted, and the heart was found to be flaccid. Massage by intermittent pressure at the rate of 70 to 80 per minute was carried out for about four minutes. At the end of this time the heart became firm. In a few seconds a

slight tremor was felt. Then very slowly the heart began to beat. Massage was continued for a few seconds. The action of the heart was then fully reestablished. Other signs of life reappeared. Breathing became normal. At 3 P.M. the patient died.

In another case the author was removing an ovarian cyst when the heart and respiration stopped. Artificial respiration had no effect, so the hand was thrust up against the diaphragm and the heart given a few squeezes, when it was set going and the patient recovered.

HEPATIC CIRRHOSIS—NEW OPERATION.

Drainage of the abdomen by inserting the tip of the omentum in a subcutaneous pocket is the aim of the operation proposed by NARATH (*Centralblatt für Chirurgie*, Aug. 12, 1905).

The abdomen is opened in the median line just above the umbilicus, and after the fluid has escaped the tip of the omentum is drawn through the opening, but not far enough to exert traction on the transverse colon. A piece of omentum 10 to 15 centimeters long, and as thick at the base as one or two fingers, should protrude. The peritoneum and fascia are closed as much as possible without constricting the stump, and a subcutaneous pocket of proper shape prepared, into which the omentum is thrust. The skin is then closed. Local edema soon appears, and then the veins in the neighborhood begin to enlarge until a good collateral circulation has formed. If the wound in the fascia is too large hernia of the colon may result. Otherwise the results are excellent.

INTESTINAL OBSTRUCTION—EVACUATION OF DISTENDED BOWEL.

The methods of evacuating the intestine above an obstruction are considered by PINATTELL and RIVIERE (*Revue de Chirurgie*, Aug. 10, 1905), who regard the methods in use at present as unsatisfactory and propose two new ones based on experiments on the cadaver.

The first of these consists in making an opening in the distended bowel and introducing a rubber tube connected with an exhaust pump. In this way the bowel may be emptied rapidly and thoroughly.

A tube of 13 millimeters external and 9 millimeters internal diameter is of proper stiffness. About 50 centimeters may be introduced into the bowel, and 150 centimeters of intestine drained by sliding the bowel over it. If desired a wire may be inserted in the tube and connected with an electric battery.

The other method is the application of a machine consisting of two metal rollers placed parallel to one another sufficiently far apart to enclose the bowel without squeezing. This is drawn along the intestine, and the contents in this way forced through the opening in the bowel.

INTERSCAPULOTHORACIC AMPUTATION FOR TUMORS.

The striking fact in the statistics collected by JACOBSON and RICHE (*Revue de Chirurgie*, Aug. 10, 1905) is the low mortality and the long survival of the cases operated on since 1887, when the technique was improved. Of 153 cases reported on since that time for malignant tumors of the bones, 12 (7.84 per cent) died soon after operation, and the remainder lived on an average three years after. Twenty-four have lived more than five years, and 10 more than ten years.

In the same number four new cases are reported.

A SAFE, SIMPLE, AND SURE CURE FOR GANGLION.

CATES (*Surgery, Gynecology, and Obstetrics*, August, 1905) says that the best treatment for ganglion is campho-phenol. He has never failed to effect a cure by this agent. It is prepared by mixing equal parts of camphor gum and crystalline carbolic acid. The result is a pure white, slightly oily fluid, with the odor of camphor. It is non-toxic, having all the good but none of the bad properties of carbolic acid. To use it the region of the ganglion should be prepared as in operation. The preparation of campho-phenol in quantity of 15 or 20 drops should be injected directly into the ganglion by means of a hypodermic syringe. There is some reactionary swelling, but this soon subsides, and a complete cure is obtained by one injection. The limb should be kept at rest on a splint, or the patient should remain in bed for a few days.

A SUMMARY OF TWENTY-FIVE RADICAL OPERATIONS UPON THE RECTUM UNDER LOCAL (STERILE-WATER) ANESTHESIA.

COOKE (*Medical News*, Aug. 26, 1905) states that his operations were internal hemorrhoids, 15; prolapsus ani, 2; anal fissure, 2; external hemorrhoids, 6. Complaint of pain sufficient to attract attention was observed in only two cases. The average time of confinement to bed was two days, and of detention from business five days. The author draws the following conclusions from his experience:

The method is simple, safe, and effective. Pain at the time of operation is so rarely encountered as to be exceptional. Postoperative pain is inconsiderable, less by far than after the old methods. Confinement to bed and detention from business are reduced more than 50 per cent. Operations under this method are practically bloodless; secondary hemorrhage could scarcely occur except as the result of faulty technique. It offers a reliable means of extending the benefits of surgery to a large class of cases which otherwise would be unsuitable for operation. It robs these operations of their terror. Patients will consent readily and eagerly to a radical procedure, if only they can escape chloroform and ether, and even in the exceptional cases where some pain is inflicted will invariably express genuine gratitude at having been spared the customary dreaded ordeal.

APPENDICOSTOMY AND CECOSTOMY IN THE TREATMENT OF CHRONIC COLITIS.

MEYER (*Medical News*, Aug. 26, 1905) states that if in chronic colitis and sigmoiditis medical measures have failed, one may either temporarily exclude the diseased part by forming an artificial anus, or may establish a water-tight or but slightly leaking entrance into the beginning of the large intestine for the sake of irrigation only, allowing the fecal contents to run their normal course. An artificial anus is objectionable, and should not be formed until cecostomy or appendicostomy has been tried. Since October, 1902, the author has done appendicostomy in four patients and cecostomy in one. The first patient upon whom the

former operation was done had been ill for over a year, and had been the subject of various operations upon the lower bowel. He improved rapidly after the appendicostomy, but some six months later died following further operative intervention. The second patient was a young man suffering from amebic dysentery. Following the operation and irrigations he rapidly improved, the amebæ disappeared, and the stools began to be formed. The third case was one of ulcerative colitis of tuberculous character. After the operation improvement was rapid, though constitutional treatment was also used.

The fourth case was one of syphilitic inflammation of the lower intestine. Appendicostomy was done and was followed by over a year of flushing of the intestine, at the end of which time the opening was closed and cure appeared to be complete. The patient on whom cecostomy was done had been suffering with diarrhea for three years. After about three months of irrigation great improvement was noted in the condition of the bowel.

SPINAL ANESTHESIA.

HALSTEAD (*International Journal of Surgery*, August, 1905) says that in operations upon the lower half of the body, when from kidney, lung, or heart disease a general anesthetic is dangerous, and where infiltration or analgesia from neural injections is not possible, spinal analgesia can be employed.

In strangulated hernia or intestinal obstruction from other causes, and perforations, where considerable time may be required, thus contraindicating the use of local anesthesia, spinal cocainization: first, because the patient remaining conscious is not so likely to drown in fecal vomit; secondly, because the shock from the puncture is practically nil. In traumatic surgery of the lower extremities the use of spinal cocainization "blocks" the reflexes and eliminates the great risk of shock. In amputations about the hip, when the shock from the operation is generally very severe, and often fatal, after cocainization of the cord the amputation may be performed without any change in the pulse-rate. In this class of operations, if for good reasons unconsciousness is essential, as it sometimes is, a small

amount of ether and chloroform may be administered to secure this end. The spinal cocainization insures the required analgesia.

Halstead believes spinal analgesia is contraindicated in all cases in hysterical women and young children, and in the insane. It should be used only when its action can be explained to the patient and coöperation thus secured.

He does not consider that the presence of any ordinary heart lesion should prevent its use. It goes without saying, however, that any marked idiosyncrasy for cocaine should constitute a positive contraindication against spinal analgesia.

PROLONGED LAVAGE A PREVENTIVE OF ETHER-VOMITING AFTER OPERATION.

BROWN (*Surgery, Gynecology, and Obstetrics*, August, 1905) relates the results of his experience with prolonged lavage as a prevention of ether-vomiting. He believes that the ether is excreted largely by the gastric mucosa, and that as long as this is kept up vomiting may occur. By prolonged lavage the ether is washed out of the blood and vomiting is prevented.

The tube is kept in the stomach and that organ thoroughly washed out before the patient recovers from the anesthesia. Two and a half or three gallons of water is introduced into the stomach and siphoned out, a pint or a quart at a time. If the patient has nausea after ether he is required to drink a glass of water. Then, if vomiting occurs, it is done with the greatest ease and comfort. Draughts of water are not harmful except after operations on the stomach.

HEPATIC CIRRHOSIS—SURGICAL TREATMENT.

The most interesting part of the article of MONPROFIT (*Annales de Chirurgie et d'Orthopédie*, April, 1905) is a letter from Lambotte which he quotes in full.

Lambotte, finding that suturing the omentum was of only temporary benefit, decided that the effect was due to the capillary drainage of the sutures, and ceased when these were encysted. To prove this the following operation was performed on a severe case of cirrhosis which had required weekly tapping: A

trocár was introduced as for an ordinary aspiration, but before it was withdrawn a large silk thread was passed through it into the abdomen. The intra-abdominal end was furnished with a knot six centimeters from its end, and the other end was threaded in a long needle which was passed subcutaneously to the middle of the thigh; the needle was then withdrawn, the silk being cut on a level with the skin and its end by manipulation being made to disappear beneath the surface.

The operation was performed on both sides. Three days later edema appeared at the lower end of the thread, and coincidentally the ascites began to diminish. The effect lasted several weeks, and then the ascites collected again, and death followed from exhaustion. Autopsy showed that the intra-abdominal ends were entirely withdrawn from the abdominal cavity into the abdominal wall, the knots probably not being large enough.

PENILE HYPOSPADIAS—NEW OPERATION.

Improved function is the aim of the new method described by BILHAUT (*Annales de Chirurgie et d'Orthopédie*, April, 1905). The procedure is based on the fact that the penile part of the urethra is very extensible, easily separated from its surroundings, and so well vascularized that its nutrition is not threatened by such separation.

A transverse incision is made on the lower surface of the penis at the base of the glans, and a longitudinal incision extended from its center as far back as necessary. The urethra is then exposed and freed from its attachments for a sufficient distance. A double-edged, narrow bistoury is passed longitudinally through the glans and brought out at the transverse incision. A pair of fine forceps is passed backward through this canal, and the end of the urethra grasped by them is drawn through the glans and sewed securely to the mucous membrane around the edges of the incision. The longitudinal incision, which generally extends to the scrotum, is then sutured with separate catgut stitches, each stitch catching the urethra superficially but not puncturing it. The transverse incision is then sutured and the wounds dressed. An antiseptic

pad must be kept over the end of the glans and changed each time the patient urinates. In children under five the operation would be very difficult on account of the thin urethral wall, for which reason it would be best to wait until this age before operating.

AN EXPERIMENTAL CONTRIBUTION TO THE TREATMENT OF CHOLELITHIASIS.

BAIN (*British Medical Journal*, Aug. 5, 1905) sums up the results of his observations as follows:

That gall-stones introduced into a normal gall-bladder become dissolved within a comparatively short space of time, in about eight or nine weeks.

That when a mild degree of cholecystitis is set up gall-stones inserted into the gall-bladder do not disappear, although there is always a reduction in weight.

That ichthoform, cholelysin, olive oil, and calomel do not appear to have any effect in resolving calculi introduced into a gall-bladder the mucous membrane of which is inflamed.

That during a course of the Harrogate old sulphur water gall-stones become disintegrated in cases of cholecystitis experimentally induced.

That in the treatment of artificially produced cholelithiasis a mixture of urotropin and iridin has a pronounced effect in causing dissolution of the calculi.

That in regard to the action of barium chloride further experiments are necessary to determine its rôle in experimentally produced cholelithiasis.

PAINFUL GANGRENE—RELIEF BY RESECTION OF NERVES.

Resection of the sciatic nerve is advised by BARDESCO (*Presse Médicale*, July 15, 1905), who claims that other methods are ineffective and that this operation has no bad trophic influence, but merely relieves all pain and hastens the formation of a line of demarcation and the separation of the sphacelus.

One case is reported in which resection was performed five months from the beginning of the disease, and amputation was performed three weeks later, the flaps uniting by first intention. Three months after resection tactile sensation had returned, but there was no pain.

*PATHOLOGY AND THERAPY OF CON-
GENITAL DISTENTION OF THE
COLON.*

A careful study of several cases of this disease has convinced PERTHES (*Archiv für klinische Chirurgie*, lxxvii, 1) that there is no real stenosis but merely a valve action due to kinking of the bowel, owing to the fact that the rectum is not distended, and the enlarged colon sinks into a position alongside of it.

Plastic operations are ineffectual, as is partial resection of the colon. The best method is to make a false anus in the colon descendens and empty the colon by lavage. A few weeks later colopexy should be performed, or if tests at the time of operation show this to be insufficient, resection of the constricted part may be added.

*BASEDOW'S DISEASE—EXCISION AND
X-RAYS.*

In two cases of exophthalmic goitre, which were improved but not cured by partial excision of the thyroid gland, BECK (*Berliner klinische Wochenschrift*, May 15, 1905) used the Roentgen rays. He began their use in one case thirteen months after operation, and in the other eighteen months after. The improvement was very marked in both cases and was accompanied by a marked decrease in the size of the gland. Beck therefore decided to use the rays on a third case immediately after operation, and the treatment was used daily for ten minutes. Five months after operation there were no symptoms of the disease. Even Graefe's and Stellwag's signs were no longer present.

*PROSTATIC HYPERTROPHY—TREAT-
MENT BY X-RAYS.*

Rapid reduction in size is reported by MOSKOWICZ and STEGMANN (*Münchener medizinische Wochenschrift*, July 18, 1905), who exposed the gland through a rectal speculum. A Kelly proctoscope with the end cut off diagonally is introduced so that the opening lies against the prostate. The parts are protected by lead plates and a Gundelach tube placed in the axis of the proctoscope at a distance of 40 centimeters. Exposure lasts fifteen minutes, and is repeated two or three times at intervals of two or

three weeks. Three exposures were enough to relieve any case treated.

It is noteworthy that in no case was there any soreness of the rectal mucous membrane, although systemic disturbance followed exposure in several instances. Attacks resembling angina pectoris with great weakness and faintness were noted in three cases. Locally there may be tenesmus and dysuria for a time, or transitory attacks of epididymitis. The decrease in consistence of the gland was always marked after the first exposure, and decrease in size was quite rapid.

*ARTHRODESIS OF THE KNEE-JOINT—
TECHNIQUE.*

This operation, which consists in removing the cartilage from the articular surfaces of the joint and putting the latter in good position, has been performed fifteen times by GURNER (*Centralblatt für Chirurgie*, June 17, 1905), who describes his technique.

The curved anterior incision is the best; the lateral ligaments must be spared as far as possible. The removal of the cartilage must be very sparing, and Turner recommends a chisel with an attachment like a safety razor, which prevents cutting too deep. The posterior surface of the patella is also scraped and serves as the bond between the bones. The tendons of the flexors may be cut if needed. The entire limb is put in a plaster cast, and union is complete in three weeks.

*EXOPHTHALMIC GOITRE—TREATMENT
BY ANTITHYREOIDIN.*

Neutralization of the excessive secretion of the thyroid gland is the basis of the treatment described by ALEXANDER (*Münchener medizinische Wochenschrift*, July 18, 1905). Assuming that the secretion of the thyroid combines with toxic agents formed in the body, and that these would collect in excess if the thyroid were removed, he injected patients with serum of thyroidectomized goats and observed rapid improvement.

He found that the serum also acted by mouth in doses of 1 to 15 cubic centimeters per diem. The sleeplessness and nervous symptoms were always promptly relieved; the tachycardia diminished and disappeared unless the heart was organ-

ically affected. Finally the goitre diminished in size until it reached normal proportions. The treatment may then be stopped and the case considered cured unless symptoms recur. The doses must not be too large at first, as symptoms of myxedema may be caused. The Schott baths of salt and CO₂ were given in all cases during the entire course of treatment.

THROMBOSIS OF THE ILIAC VEIN AFTER APPENDECTOMY.

Thrombosis having occurred in several uninfected cases, WITZEL (*Centralblatt für Chirurgie*, July 15, 1905) studied the cause and decided that the trouble did not arise near the appendix, but was due to ligation of the epigastric artery and vein in the abdominal wall. The thrombus extended from this vein to the femoral vein or to the epigastric of the opposite side, and thence to the left femoral. He warns against ligation of the epigastric vessels and proposes an incision designed to avoid them.

CANCER OF THE BREAST—OOPHORECTOMY AS TREATMENT.

Several surgeons have used this treatment in inoperable and recurrent cancers, on account of the fatty change which occurs in the cells of the normal mammary gland after the operation.

MICHEL (Münchener medizinische Wochenschrift, June 13, 1905) states that the operation has now been performed on over 100 women, and improvement follows in about half the cases. Some live in comfort for over five years. The operation may well be combined with partial extirpation of inoperable tumors or with x-ray treatment. Michels himself has performed the operation three times and has had good results. In each case an incomplete extirpation was performed, and the patient remained free from recurrence for several years.

INDICATIONS FOR REMOVAL OF THE TUBERCULOUS KIDNEY.

The ability of the sound kidney is the most important necessity, according to ROVSING (*Archiv für Chirurgie*, Bd. lxxvii, Heft 1), who believes that double catheterization followed by the usual

tests is the best method of deciding this question. If the urine from the better kidney is free from blood, pus, and bacteria, and contains little or no albumin, nephrectomy is probably safe even if the amount of urea is low.

Partial resection of the kidney is not advisable even if it seems only diseased in part. Tuberculosis of the bladder can usually be cured by injections of 5-per-cent carbolic acid, repeated until it returns clear, and done every other day. After the ulcers are healed the diseased kidney may be removed. Operable lesions of the testicles, etc., are not contra-indications, as these may be removed at the same time.

CANCER OF RECTUM—ABDOMINOPERINEAL RESECTION.

The advantages of the combined method are, according to GOULLIoud and FAYSE (*Revue de Chirurgie*, June and July, 1905), that it permits more complete extirpation, gives more assurance of asepsis, gives power to excise not only great lengths of large intestine but also surrounding tissues, and avoids hemorrhage almost entirely. The terminal results seem very good, but the operation is not old enough to determine this point definitely. The immediate results show, like other rectal operations, a very high mortality in the male and very low in the female.

The operation is performed as follows: The abdomen is opened by two distinct incisions—one in the median line, and the other, a short one, in the left iliac region; the latter is destined for the false anus. A loop of colon is picked up at a point above the cancerous infiltration and passed through the small opening. This is divided outside the abdomen, and the lower end firmly closed by suture and the upper end sewed to the abdominal wall. The rectum is then separated from all surrounding organs, the incisions being made as far as possible from the rectum. It must be freed at least as far down as the bottom of Douglas's cul-de-sac, the peritoneum lining which should be divided. The peritoneum remaining should be drawn together as completely as possible, and after placing a large pad around the rectum the large abdominal incision may be completely closed. The hands

and perineum are then recleansed; the latter is opened by an elliptic incision, and the inverted end of the closed rectum is caught by forceps passed through above the anus. The entire rectum is then freed from below and removed in one piece. The perineal wound is filled with tampons and left open. The false anus is then completed and dressed, and the operation is finished. The gauze in the perineum may be changed in eight or ten days, and then every other day. It requires two to three months for complete cicatrization.

SUTURE OF WOUNDS OF THE LUNGS.

The exposure of wounded lungs and examination of their condition is advised by GAIRE (*Archiv für klinische Chirurgie*, Bd. lxxvii, Heft. 1) in all cases of penetrating wounds of the thorax.

Ordinarily the lung is best exposed by enlarging the wound, but often it is better to make a new opening, and in this case it should be made well back and not too low, as the opening in the chest wall causes the lung to draw upward and backward as it collapses. Wounds of the parenchyma should be sutured deeply with fine silk, and if large vessels are injured the bleeding may be controlled by tampons.

A NEW METHOD OF EXTIRPATING THE INTERNAL SAPHENOUS AND SIMILAR VEINS IN VARICOSE CONDITIONS.

KELLER (*New York and Philadelphia Medical Journal*, Aug. 19, 1905) says the object of this operation is to extirpate such veins as have few branches without mutilating the patient by a scar along the course of the vessel. The vessel is exposed by a short incision near the femoral opening, dissected free from its sheath for about an inch, and ligated as high up as possible. The lower end of the vein is treated in the same way. The vein is then cut off below the proximal end and above the distal end. The upper end of the section to be removed is now split for about three-fourths of an inch on its anterior wall. A strong ligature is then tied to the upper end of the vein, care being taken not to include more tissue in the ligature than will pass through

the lumen of the vessel. A wire loop or probe is passed through the lumen of the vessel from the lower opening, and the ligature is threaded through the eye of the loop or probe; the wire or probe is then withdrawn and the ligature brought out upon the surface at the point where the probe entered. Gentle traction is now made upon the ligature, the edges of the vein being inverted into its own lumen by an assistant. Traction is continued until the vein is completely extirpated by being turned inside out and withdrawn from its sheath. If a branch of the vein impedes the withdrawal a slight puckering is produced at the point of branching, and a small incision can be made here and the branch ligated and cut off. The operation has the advantages that it leaves no long or painful scar, the danger of infection is lessened, and it can be done in less time and with less hemorrhage.

TUBERCULAR ARTHRITIS OF KNEE—AMBULATORY TREATMENT.

An apparatus remarkable for its simplicity is described by BENOIT (*Annales de Chirurgie et d'Orthopedie*, April, 1905). It consists of a plaster-of-Paris bandage in which is included a metal strip which extends below the foot and supports the weight of the patient.

The affected leg is enveloped in a thin layer of cotton batting, the front of the knee, which is fully extended, being left exposed. This is held in place by a bandage and a thick cuff of flannel placed at the upper part of the thigh to prevent pressure. Over this is placed a plaster-of-Paris bandage beginning at the hip, leaving the front of the knee exposed, and consisting of five or six layers. The essential part of the apparatus is next applied. This consists of a strip of zinc about an inch wide and sufficiently heavy to support the weight of the body. It passes from the upper third of the thigh inside down the leg to a point 4 to 6 centimeters below the sole, where it is bent at right angles to form a stirrup, and passes up the outside of the leg to the same height. Over this is applied plaster of Paris sufficient to prevent slipping and flexion of the knee, and the dressing is complete. A high sole must be put on the opposite foot. It is important that the ankle and front of the knee be free.

Reviews.

THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the Use of Practitioners and Students of Medicine. By William Osler, M.D. Sixth Edition, Thoroughly Revised. D. Appleton & Co., New York and London, 1905. Price \$8.00.

The first thing that strikes the reviewer upon examining the new edition of Osler's Practice is the fact that the text has been rearranged. The first 55 pages, instead of being devoted to a consideration of several of the infectious diseases, is now devoted to the Diseases Due to Animal Parasites, while the second section deals with the Infectious Diseases, which in previous editions opened the volume. Immediately after a consideration of the infectious diseases we find Intoxications and Sunstroke, then Constitutional Diseases, and then in turn diseases of the various systems. It is interesting to note that malarial fever is now placed amongst the diseases due to animal parasites rather than among the infectious diseases. There can be no doubt of the theoretical correctness of such an arrangement. It is also interesting to note that amebic dysentery occurs in Section I, while that form of dysentery which is due to the bacillus of Shiga is discussed under the infections.

The rest of the volume shows careful revision, but many of the articles are not materially changed. In the article upon Cholera nothing is said of the value of hydrochloric, or sulphuric, acid in prophylaxis or in the treatment of disease, which is regrettable, not only because they have been found clinically active, but also because it is a well-known fact that the comma bacillus is destroyed by the acid of the stomach, and other acids, when it is present in what may be called normal quantities. Surely acids of an astringent character should rank above opium, acetate of lead, and bismuth in the treatment of this condition. So, too, nothing is said of tannic acid clysters in the treatment of this disease.

In the discussion of the treatment of tetanus no mention is made of the value of intraneural injections of tetanus antitoxin. While it is perfectly true that tetanus antitoxin, when administered after the symptoms have developed, does not produce as excellent results as we might hope for, sufficient emphasis is not

laid upon its value as a prophylactic in cases where infection is supposed to have taken place, particularly after wounds by toy pistols. Criticisms of that portion of the work which is devoted to the treatment of disease could be carried further than this, but as is well known Dr. Osler's book has always found its strength not in its therapeutics but in its accurate and careful description of symptomatology and pathology. As such the volume stands to-day one of the classics in modern medical literature. No one has attempted, or ever will attempt, we think, to criticize the book as a whole in an adverse spirit, and if they did so it is doubtful whether such criticisms would receive any attention from those members of the profession who have come to value the work from their own experience with it.

A TEXT-BOOK OF PHYSIOLOGY FOR STUDENTS AND PRACTITIONERS. By Winfield S. Hall, Ph.D., M.D. Second Edition, Revised and Enlarged. Lea Brothers & Co., Philadelphia and New York, 1905.

Professor Hall's work on Physiology is one which is probably better suited to the physician who wishes to resuscitate his gradually declining knowledge of physiology and physiological physics than it is to supply the undergraduate student with information which will enable him to grasp what might be called the elementary facts in this branch of medical science. When we open the volume we are impressed by what seems to us, at first sight, to be an excellent departure from similar works on physiology. We find that the author believes it is a mistake for the student to master normal physiology without applying its laws to the symptomatology and pathology of disease, and surely this is an excellent conception of the modern view of teaching medical men. The author has attempted to cover this field, and has asked a number of his colleagues to aid him in so doing, but we find on examining the text that the pathological descriptions are so divorced from the physiological descriptions that it is not easy for the student to link them together. Surely it is scarcely necessary to devote three-quarters of a page to the pathology, symptomatology, and physiology of acute coryza, and to describe the symptoms of pharyngitis, tonsillitis, laryngitis, and the pathology and symptomatology of lobar

pneumonia, particularly when the symptomatology of lobar pneumonia is so condensed as to cover less than four lines. There are certain diseases which are so closely connected with pathological processes that they can be well used to impress upon students the importance of studying both normal and abnormal functions, but these instances which we have named, and others which might be mentioned, are, we think, not fortunately chosen. So we do not think it fortunate to state under the head of "The Physiology of the Respiration" that acute miliary tuberculosis is more a circulatory than a respiratory disease, since this is only true in one sense. Nor do we see any advantage in stating in a book on physiology that the symptoms of pulmonary tuberculosis consist in general debility, hemorrhages, fever, coughs, sputum, and dyspnea. The introduction of these incomplete descriptions of disease takes up much of the space which might, we think, be better devoted to a more thorough consideration of elementary physiological facts. The book shows much learning, much insight into modern physiological knowledge, and is a highly creditable scientific contribution, but we repeat that we think it is not as well suited to the needs of the student as it is to the needs of the physician.

PHYSICAL DIAGNOSIS. By Richard C. Cabot, M.D. Third Edition, Revised and Enlarged. William Wood & Co., New York, 1905.

The present edition of Dr. Cabot's book on Physical Diagnosis is larger than its predecessors, and deals with the subject on a broader plane than before. The author frankly informs us that because of his lack of personal acquaintance with such methods as cystoscopy, ophthalmoscopy, and laryngoscopy he has attempted no description of them, and has devoted himself only to those methods which he himself has practiced. Those who know Dr. Cabot personally are aware of the fact that one of his chief characteristics is absolute frankness, and they can rest assured that all of the statements which he makes in his pages are based upon a very earnest conception of the truth of his remarks. There are some books which are not worthy of careful criticism, and there are others which are so good that it is possible for a reviewer to find fault without in any way

intimating that the book is one which will not prove useful to the practicing physician. We therefore preface any criticisms we make by the statement that this volume is one which reflects great credit upon its author and will doubtless come to numerous other editions in the future.

In the endeavor to be brief we think that the author gives unimportant symptoms too much importance. We are told, for example, on page 14 that dark circles under the eyes may appear in any debilitated state, as from loss of sleep, hunger, menstruation, masturbation, etc. While it may be true that these causes produce this symptom, it is also true that dark circles under the eyes are found when these causes are absent, and one of the most eminent members of the medical profession still living presents this symptom quite constantly without we believe suffering from any of the causes named. The statement that arcus senilis is one of the classical signs of old age and arterial sclerosis is, we believe, incorrect, for ophthalmologists in large numbers have expressed the view that there is no relationship between arterial changes and this symptom. To say that squint is called external if the eye turns out, and internal if it turns in, and then to mention as causes intracranial lesions, tuberculous and epidemic meningitis, syphilis, and tumors, will scarcely give the student a proper conception of the importance of this symptom. We notice that the author, evidently, is in favor of relying upon Tallquist's scale for estimating hemoglobin in preference to other methods. Fig. 17, which is supposed to illustrate the blue line on the gums in chronic lead poisoning, does not show any blue line on the gums, but a black deposit about the base of the teeth, which is quite different from any case of lead poisoning that we have ever seen. Similar criticisms of other portions of the book might be made. On page 458 we find a picture showing a pair of legs covered with trousers, and labeled "Housemaid's Knee," but the trousers are not of that kind which are commonly called "unmentionables." Most of the other illustrations, however, are exceedingly well chosen in the sense that they adequately illustrate what the author wishes to emphasize in the text.

We repeat in conclusion that the book

contains so much that is good that it is bound to maintain its popularity with both the practitioner and the student, and can cordially recommend it.

THERAPEUTICS: ITS PRINCIPLES AND PRACTICE. By Horatio C. Wood, M.D., LL.D., and Horatio C. Wood, Jr., M.D. Twelfth Edition, Thoroughly Revised. The J. B. Lippincott Co., Philadelphia and London, 1905.

Among the great number of books which have appeared in medical literature during the last thirty years there are some which stand like bold promontories towering above low-lying portions of a shore, and one of these is Dr. Wood's Therapeutics. From it a very large number of practitioners of the present day have gained much information, both as undergraduates and active physicians. There are probably few of our readers who are not acquainted with earlier editions of the book, and they recognize its good qualities. It was practically the first work in this country which showed the value of scientific research in connection with practical therapeutics in distinction from pure therapeutic empiricism, and it continues to fulfil this high function with skill.

It may not be out of place to make a few suggestions which will look to its betterment in future editions. Thus, under Ethyl Chloride it is hardly fair to state that it produces an amount of circulatory depression disproportionate to its anesthetic properties, and is so fugacious as to be scarcely fit for use as a general anesthetic. The drug is so widely employed by inhalation at the present time, and is so highly thought of by many skilled surgeons, that it deserves better treatment than it has received here. In some instances, too, we find that the proper names of authors who are quoted are incorrectly spelled, as, for example, on page 101, Meixell is spoken of as Maxwell. So, too, we presume, Lombard Warren really refers to Warren P. Lombard, on page 301.

Under Hyoscine we do not find it pointed out with sufficient emphasis that it is really scopolamine, and nothing is said in the discussion of its therapeutics concerning the use of the drug in the treatment of chronic morphine poisoning and alcoholism, which is certainly one of its most important uses. Neither is it pointed out that under these circum-

stances very large doses can be given without any deleterious effects.

An exceedingly useful portion of the book is that which gives us the bibliography of the articles which are quoted by the authors.

We repeat what was said at the beginning of this notice, namely, that Wood's Therapeutics is still, and will continue to be, one of the standard works upon this subject in the English language.

THE DIAGNOSTICS OF INTERNAL MEDICINE. By G. R. Butler, M.D. Second Edition. Illustrated. D. Appleton & Co., New York, 1905.

This excellent book devoted to medical diagnosis has now been before the profession for a number of years, and has made for itself a well-filled place in the library of physicians. The author tells us in his preface to the second edition that the advances of medical science have required many minor and a considerable number of major alterations.

It will be remembered that the first part of the volume deals with the evidences of disease, and the second with diagnosis, direct and differential. In this second part the various infectious diseases and the diseases of the different systems are considered, while in the first part the relationship of age, sex, general configuration, and general symptomatology are discussed. The book is copiously illustrated, not so much with pictures of actual patients as with art pictures, upon the surface of which physical signs have been marked. A number of skiagraphs have been introduced to illustrate this method of studying pulmonary lesions. Our experience has been that while the fluoroscope gives us considerable information in regard to pulmonary conditions, the skiagraph, except in the hands of one most accustomed to its use, gives little information. In the description of the various intoxications we can hardly agree that the manifestations of acute lead poisoning are as stated on page 1127. They are rather the symptoms of sub-acute or chronic poisoning.

THE DOCTOR'S RECREATION SERIES. Edited by Charles Wells Moulton. The Saalfeld Publishing Co., Akron, Ohio, 1904.

The profession is probably familiar with the contents of this volume as it appeared a number of years ago, and this present edition also appears with an introduction by the late Dr. William Pep-

per. We have before noticed in these columns several volumes belonging to this series. Most of them have contained short stories of interest to medical men. The present one is devoted entirely to pieces of verse, both grave and gay, some of them parodies, others, poems written for medical celebrations, and still others prepared by members of the laity who have been desirous of describing physicians in well-turned rhyme.

A MANUAL OF ORGANIC MATERIA MEDICA AND PHARMACOLOGY. By Lucius E. Sayre, B.S., Ph.M. Third Edition, Revised. Copiously illustrated. P. Blakiston's Son & Co., Philadelphia, 1905.

As may be imagined from its title this book is more suited to the student of pharmacy than to the student or practitioner of medicine. With the readers for which it is intended it has long since become a standard work. It is much enriched by a department devoted to histology and microtechnique, contributed by William C. Stevens, professor of botany in the University of Kansas, and therefore a colleague of Professor Sayre. The present edition is issued in order that the book may be in consonance with the new United States Pharmacopœia. The part devoted to Therapeutics is exceedingly limited, while that devoted to the botanical characteristics of the various medicinal plants is thorough and complete.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume III. Lea Brothers & Co., Philadelphia and New York, 1905.

As with previous issues of this publication in September the present volume deals with diseases of the thorax and its viscera and the blood-vessels; with dermatology and syphilis; diseases of the nervous system; and obstetrics. Dr. Ewart, of London, contributes the first article, as heretofore, opening with a careful consideration of the literature of tuberculosis during the past year, and describing with analytical care the prophylactic and therapeutic measures which have been brought forward during the last twelve months in combating the "great white plague." It is only when we carefully read Dr. Ewart's contribution to this subject that one can obtain a conception of the activity on the part of

both medical and lay men in regard to this subject, unless perchance the reader has been keeping himself abreast of all the literature of tuberculosis during the period covered by this article. Very interesting summarizations of the literature concerning cardiac disease are also presented, and we are glad to notice that very careful consideration is given the important subject of the proper administration of digitalis in cardiac cases. Nearly twenty pages are devoted to diseases of the arteries.

In Dr. Gottheil's article on Dermatology and Syphilis we find that not only has he abstracted all that is good from the literature, but that he has embodied much from his own personal experience. All of his facts are presented with that fluency and ease of description which have characterized his articles in previous issues.

The article on Diseases of the Nervous System, by Dr. Spiller, is not intended to be an exhaustive contribution to neuropathology, but an endeavor is made to present the general practitioner with all important facts in the year's neurological literature.

Dr. Norris's article on Obstetrics, covering, as it does, over 100 pages, is essentially practical, and the views of the writers he quotes are controlled by his own large experience as obtained in private practice and in the wards of the Preston Retreat.

THE READY REFERENCE HANDBOOK OF DISEASES OF THE SKIN. By George Thomas Jackson, M.D. Fifth Edition, Thoroughly Revised. Illustrated. Lea Brothers & Co., Philadelphia, 1905.

Within a few years we have taken pleasure in reviewing several editions of this excellent, though comparatively brief, work upon Diseases of the Skin. It is essentially, as its title indicates, a ready reference handbook; a small octavo of less than 700 pages, including the index, devoted chiefly to a consideration of the diagnosis and treatment of skin lesions, and leaving an exhaustive consideration of their etiology and pathology to larger and more encyclopedic works. In addition to many prescriptions which are included in the text there is an appendix containing a multitude of formulæ for both internal and external use in the treatment of the diseases which are discussed throughout the work. The illus-

trations are excellent, and one feels in reading the text that he is able to treat the diseases as they would be treated if Dr. Jackson were present. In other words, it is easy to apply his suggestions to the case in hand. We believe that this book will have a constantly increasing popularity as it becomes more widely known.

A TEXT-BOOK ON THE PRACTICE OF MEDICINE FOR STUDENTS AND PRACTITIONERS. By James M. French, A.M., M.D. Second Edition. Illustrated. William Wood & Co., New York, 1905.

It is but a short time since the first edition of this book appeared, and therefore the writer tells us that there have not been very material changes in the second edition. The book is designed as a complete and concise summary of our knowledge of those diseases which are commonly discussed under the heading of "practice of medicine." It is accurate and complete, and does credit to the clinical experience and literary ability of its author.

A TEXT-BOOK ON THE PRACTICE OF MEDICINE. FOR Students and Practitioners. By Hobart Amory Hare, M.D. Illustrated. Lea Brothers & Co., Philadelphia and New York, 1905. Price \$5.00.

We print below the author's preface, which explains the scope of this work, and attach to it the publishers' preface to a second printing, the purpose of which is explained in their own words:

"This volume, prepared for the physician and student of medicine, embodies the experience of more than twenty years of active hospital and private practice, during which time the author has been constantly teaching the subjects of clinical medicine and therapeutics. With this experience he has attempted to present the facts which the practitioner needs, and which the student must thoroughly grasp if he is to be successful in gaining his degree and in practicing his art.

"In the preparation of many portions of the work careful collections of statistics have been made, and these have not infrequently given results which add materially to our conception of the frequency of certain diseases at different periods of life, of the relative frequency of different symptoms, and the value of certain plans of treatment. Particular pains have been taken to present methods of treatment clearly and in such a way that they may

be put in practice. Much information that might be included, which deals with subjects which are still uncertain and debatable, has been excluded.

"Warm thanks are due Dr. W. M. L. Coplin, Professor of Pathology in the Jefferson Medical College, for valuable suggestions and criticisms, in which he has shown not only a complete grasp of his own department of study, but intimate knowledge concerning the latest developments in clinical medicine.

"The author also desires to acknowledge the valuable suggestions of Dr. William Pickett, one time instructor in neurology in the Jefferson Medical College, and now Professor of Diseases of the Nervous System in the Medico-Chirurgical College of Philadelphia, in the preparation of the chapter on Diseases of the Nervous System.

"The fact that the United States has, within the last few years, become possessed of territory in the tropics has greatly increased our interest in the many tropical diseases heretofore scarcely known by practitioners in the temperate zone, and the investigations by surgeons in the Army, Navy, and the Public Health and Marine Hospital Service have thrown much light upon these affections. Further than this, the investigations by English physicians have broadened our views very greatly as to tropical diseases. As troops returning from tropical service often bring with them manifestations of these diseases, it behooves every practitioner to be able to recognize and treat such conditions. It seems appropriate, therefore, that a modern work on medicine should contain chapters on tropical medicine, the more so as lectures upon this subject are now given in many of the great medical schools. The author is indebted to Dr. Charles F. Kieffer, major and surgeon in the United States army, for the chapters on Tropical Diseases, prepared after his return from service in the Philippines, and while lecturing on this subject at the Jefferson Medical College.

"The exhaustion of the large first printing of this work in three months has presented an early opportunity for certain improvements contemplated by the Publishers. The text has been printed on less glossy paper, and the more elaborate engravings have been separately printed as plates, whereby their fine de-

tails are more clearly brought out. In this way it has been possible also to make the volume much lighter in the hand and more comfortable for the eye. A readjustment of the type on every page has been necessary, but the work is so thoroughly abreast of date that no revision has been deemed advisable. The text of this second and larger printing is therefore identical with that of its predecessor."

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Original Articles. Edited by A. O. J. Kelly, A.M., M.D., with Collaborators. Volume II, Fifteenth Series. The J. B. Lippincott Co., Philadelphia and London, 1905.

Readers of the *THERAPEUTIC GAZETTE* are probably well acquainted with the aims of this publication, as we have frequently noticed previous volumes. In the present issue there are five therapeutic articles, contributed by physicians in the United States, France, and Great Britain. Then follow other articles upon Medicine, Surgery, Gynecology, Physiology, and Pathology. The articles which we think will prove of greatest interest to the practitioner are those upon the treatment of acute nephritis in childhood, by Dr. Morse, of Boston; on the treatment of pulmonary hemorrhage by adrenalin chloride, by Dr. King, of Edinburgh; and on injuries of the prostate gland, by Dr. Lydston, of Chicago. There is also a timely article upon the use of scopolamine, by Dr. Terrier, of Paris.

THE NATIONAL STANDARD DISPENSATORY. By Hobart Amory Hare, M.D., Charles Caspari, Jr., Ph.G., Phar.D., and Henry H. Rusby, M.D. Lea Brothers & Co., Philadelphia and New York, 1905. Price, cloth, \$7.25.

The National Standard Dispensatory, which takes the place of the National Dispensatory edited by Stillé, Maisch, and Caspari, contains the natural history, chemistry, pharmacy, actions, and uses of medicines, including those recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with numerous references to other foreign pharmacopœias, and is in accordance with the Eighth Decennial Revision of 1905 of the United States Pharmacopœia. The following notice from the publishers gives further information in regard to it:

pharmacy this new work of the highest authority is of great importance. It contains, by authorization of the Convention, every article in the new edition of the U. S. Pharmacopœia, together with such explanatory notes and instructions as are necessary to a full understanding of the brief official statements. In addition it covers the essentials of the latest foreign Pharmacopœias, and the very important domain of unofficial drugs and preparations so largely in use. Of its authors, Dr. Rusby has treated the department of Pharmacognosy, including the minor as well as the major drugs of the entire globe, a service never before rendered; Professor Caspari deals with Pharmacy, giving full information regarding methods and products, with descriptions and explanations of the most approved apparatus and tests; and Dr. Hare has written the section on Medical Actions and Uses, giving a direct and compact presentation of modern therapeutics. An Appendix of 60 pages contains all necessary tables, formulas, tests, etc., for practical use. The General Index, of about 90 pages, contains full reference to every page in the text, making it a repertory of the world's knowledge of drugs; and the Therapeutical Index, of about 40 pages, contains, under the name of each disease, references to all the medicines employed in its treatment, leading the reader to the points in the text where the conditions indicating their employment and choice will be found. In a word, the National Standard Dispensatory is a new, practical, and authoritative work containing information on all substances used in medicine and pharmacy at the present day. The volume is embellished with no fewer than 478 new and instructive engravings in the text."

Correspondence.

LONDON LETTER.

By C. F. STILL, M.A., M.D., F.R.C.P.

The chief event in the medical world of this country during the past month has been the meeting of the British Medical Association at Leicester, where, as is our annual custom, each member of that vast pilgrimage "*miscuit utile dulci*" with

communications have been or will be published in full in one or other of the medical journals it is unnecessary to describe them in detail here, but it may be useful to refer briefly to some of the most practical points which were raised. And in passing I cannot forbear from mentioning the well-timed protest raised by Dr. Henry Maudsley against the absurd pedantry which threatens to make the language of medicine, in all its departments, ridiculous at the present time. Delivering the address in medicine he deplored the multiplication of verbal monstrosities to describe quite simple things; to excise a uterus is far too commonplace, the surgeon must needs perform panhysterectomy; or he may even perpetrate a panhysteromyomectomy! While the physician gloats over splenomegalic polycythemia, and describes his patient who bolts his food as promophagic or tachyphagic! Uncouth names which, as Dr. Maudsley said, are offensive alike to eye, ear and mind. But his address, which was full of interest and deep thought, dealt with far more important matters; his criticism of the present-day "boom" of sanatorium treatment for phthisis was well worthy of consideration by those who have proclaimed so loudly the wonderful results to be obtained if only sanatoriums were multiplied for rich and poor. Mr. Maudsley implied that the actual results had hardly differed from those obtained before the days of sanatorium treatment; and that even if lives were prolonged it was more than doubtful whether these formed an addition of any value to the life-capital of the nation: the ultimate cost to the commonwealth might actually be increased by enabling such persons to go on living and breeding: an addition to the nation's life-capital was all very well, but the quality of the capital had to be taken into account as well as its quantity. The patient who leaves the sanatorium improved or recovered is a constant source of danger; if he has children they come of a weakly stock, if he relapses he sows bacilli broadcast again. So too with the insane, the criminal, the inebriate; while the healthy bodily organism tries to extinguish or extirpate a morbid element, the social organism in a pious veneration for human life endeavors to absorb them all into itself. instead of de-

stroying them: and who shall say what the end will be?

The possibility of small particles traveling up mucous canals and ducts, for instance from the anus to the sigmoid flexure or from the os uteri to the Fallopian tubes or from the duodenum to the gall bladder, was demonstrated by a series of clinical experiments with indigo by Mr. C. J. Bond. Very similar experiments have been made before, and emphasize the need for cleanliness in dealing surgically with the external orifices of the body. Surgically unclean material on the vagina may mean infection of the peritoneum therefrom; and the recognition of this current from the vagina and uterus to the peritoneum may perhaps tend to check the indiscriminate curetting which is so fashionable, and which Mr. Bond asserts only aggravates in some cases the troubles it is supposed to cure. The passage of indigo particles from the duodenum to the gall-bladder suggests the possible source of nuclei for gall-stones, while the upward passage of particles from the rectum into the upper part of the large intestine throws an interesting light on the value of rectal alimentation. How this passage upward, against what would seem to be the natural course, occurs, is yet to be explained; in some parts certainly it cannot be due to the action of cilia, nor to any reversed peristalsis. Mr. Bond suggests that it is due to a current in the mucus secreted—a sort of mucous back-water.

In a discussion on meningitis the use of lumbar puncture was considered; two cases were mentioned in which rapid improvement had followed this operation, and some speakers considered that the removal of fluid by lumbar puncture did good in cases where the pressure was high; but the only proved advantage arising from this procedure is some assistance in diagnosis, especially in the differential diagnosis of the various kinds of meningitis; an advantage which no doubt benefits the physician, or at least gratifies his scientific curiosity, but can rarely, if ever, benefit the patient in any way whatever.

Tuberculous laryngitis is so serious a condition that any suggestions as to treatment are welcome, and the discussion on this subject was particularly valuable.

Most of the speakers were strongly in favor of rest-treatment as one of the most important factors in recovery; and by rest is meant not merely rest for the whole body, but for the larynx itself—in other words complete abstinence from talking. One physician described a case in which recovery appeared to be complete after five months of silence, combined with sanatorium treatment. It was pointed out also that in order to secure rest for the larynx, not only must talking be forbidden, but coughing must also be prevented. For this purpose codeine and heroin were specially recommended. In the later stages the local application of orthoform was said to be particularly useful. (Orthoform is used in the form of an emulsion with olive oil, or as a powder, and has some antiseptic value in addition to producing a considerable degree of local anesthesia, which may last several hours.) Apart from such means for promoting the healing process by local rest, most of the speakers were of opinion that no local interference was advisable; but one speaker was in favor of removing tubercular tumors if they were causing cough or dyspnea, and another speaker would use formalin locally as an antiseptic. It was interesting to notice how small a place the active surgical interference which was formerly in vogue for tuberculous laryngitis, now has in the practice of those best qualified to judge of its value. The application of caustics locally, the use of the curette and *a fortiori* the more radical surgical measures such as excision of the epiglottis, hardly find a place amongst the therapeutics of tuberculous laryngitis when treatment is undertaken early, as it commonly is nowadays.

There was so much of interest in the various sections of the meeting that it is impossible to include all in this one letter; other points may be reserved till next month. One feature is very noticeable in this as in other recent congresses, the tendency to consider questions rather with reference to the community or the state, than with reference to the individual; the scope of medicine is wider than it was. The laity also seem to be awakening to the importance of state medicine: it is hardly possible to take up a London newspaper to-day without finding some reference to the public health. A recent out-

come of this tendency was a meeting of the Sanitary Inspectors' Association under the presidency of Sir James Crichton-Browne, where a paper was read propounding elaborate precautions in the management of dairies and cowsheds. The only objection to such schemes seems to be the apparently inevitable increase in the price of milk, but it was pointed out that this difficulty would probably not occur if the milk supply were municipalized. The necessity for sanitary instruction as well as sanitary legislation was also insisted upon: particularly with reference to personal hygiene. The duty of cleanliness should be taught, and several of the speakers considered it part of the duty of the clergy to preach sanitation as part of morality, the president himself expressing the opinion that "the clergy would be very much better employed in teaching hygiene than in preaching silly sermons." Altogether it may be doubted how far a congress of the laity is likely to serve any useful purpose in discussing matters of health, when so many reckless and exaggerated statements take the place of sober discussion. One speaker stated that in large towns 25 per cent of school children up to ten years of age had not been properly washed for five years.

PARIS LETTER.

BY R. H. TURNER, M.D. (PARIS).

Rachi-stovainization, as it is called in France, seems to be employed more and more, not only in the hospitals, but also in private practice. The number of cases in which it has been used with full success is increasing daily, and even Bier, who had given up this technique when cocaine was the drug employed, is now having recourse to stovaine, and is obtaining most gratifying results. Professor Sonnenburg, of Berlin, considers stovaine to be a drug which will revolutionize the question of narcosis. Drs. Kendirdjy and Burgand have published in the *Presse Médicale* a synopsis of the results they have obtained in 140 cases, amongst which one notes 67 operations for circumcision, 14 radical cures of vaginal hydrocele, 6 radical cures of inguinal hernia, 4 removals of hemorrhoids, 9 abscesses and fistulas of the perineum, and one case of

strangulated hernia in a patient eighty-five years old. The maximum dose is five centigrammes, and it is best to use only three or four. The result was quite satisfactory in all these cases. Paralysis of the lower limbs is sometimes noted, this being of course of short duration, and the anesthesia sometimes persists for twenty-four hours. Vomiting during the operation was seen in two cases: in the first case the patient was a neurotic, suffering from phimosis; in the second case this incident took place while the epiploön was being tied and cut. Three times there was atony of the anal sphincter, and once abundant perspiration. There was seen in no case immediate rise in the temperature. Twelve times headache was noted; in half the cases it was slight and only lasted a few hours; in the others it lasted several days, and in one case two weeks, with pains in the back of the neck, but without backache, vomiting, or fever. There was, moreover, in eight cases examined, no increase in the number of lymphocytes or polynuclear globules. Vomiting after the operation was noted five times. Urinary retention was not observed in a single case. These statistics are certainly very encouraging, and whoever has witnessed an operation done by this means cannot but be struck by the ease and elegance of the narcosis obtained. It is well to remark, however, that the greatest precautions as to asepsis must be carried out, and the syringe employed should be sterilized by dry heat rather than by simple boiling.

There can be no question that there is at present a plethora of patients at Bad Nauheim, and that it is well to know what other waters have a similar effect, and where one can send patients for a cure. Amongst the French waters Royat is undoubtedly one of the best. Royat is situated in the Puy-de-Dôme, near Clermont-Ferrand, in a most delightful part of France. The waters have a temperature varying from 27° to 34° C., and contain more or less of carbonic acid. The "bain de Cesar" contains so much carbonic acid that it is called a champagne bath. The quantity furnished is very large, being over a million and a half liters every day. It is being used of late for certain heart affections, and in a recent number of the *Presse Médicale* its indications are clearly set forth by Dr. Heitz, a former interne

of the Paris hospitals. These waters are very beneficial in many cases, and for English-speaking patients there is the advantage of finding an English doctor at Royat.

At a meeting of the Society of Surgery Dr. Richelot, the celebrated surgeon, read a case submitted by Dr. de Rouville, of Montpellier, of a patient suffering from chronic appendicitis for three years, and during this time several errors in diagnosis were made—salpingitis, tubercular peritonitis, and other troubles being thought of. Several operations were carried out without definite result, and at last a laparotomy demonstrated the existence of a chronically inflamed appendix, which was removed. The results were most satisfactory.

At the thirty-fourth congress of the German Society of Surgery the question of the most favorable moment for operating was discussed, and the general opinion was that all cases of appendicitis should if possible be operated in the first forty-eight hours. If this cannot be done, it is best to defer the operation until much later, if this is possible. Dr. Roux, of Lausanne, remarked that he never operated after the first thirty-six hours. The mortality of the operation when done in the interval between attacks was only 0.24 per cent. Dr. Federmann, speaking for Dr. Sonnenburg, of Berlin, said that the immediate operation is only indicated in severe forms of appendicitis, which are easily recognized by all experienced practitioners. In light cases there is no reason for making an immediate operation, as these cases are cured by the medical treatment, and the interval operation can later be performed with comparative safety. When the case is doubtful, it is best to operate at the start.

At a recent meeting of the Society of Surgery, Dr. Chaput presented a most interesting patient. Fourteen years ago the ulnar nerve was cut, and the usual symptoms were noticed as a result of this. A few months ago Dr. Chaput performed an operation, and sutured the nerve, the two ends of which were fairly easily found. The functional result is quite satisfactory. Sensation has come back, and the interosseous spaces have filled up in great part, and though the fingers cannot be completely extended, the patient can already use his hand quite readily.

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Original Communications.

ON THE USE OF NUX VOMICA IN HYPERCHLORHYDRIA.

By J. H. MUSSER, M.D.,

Professor of Clinical Medicine in the University of Pennsylvania.

In 1885 the writer presented to the Philadelphia County Medical Society (see THERAPEUTIC GAZETTE, January, 1886) a communication on the use of ascending doses of nux vomica in various states. He pointed out that the value of nux vomica as a remedial agent was increased by the recognition that larger doses than usually prescribed could be borne, that a better effect could be produced by increasing the dose from a

minimum dose to one which produces a physiological effect, and that such effect was more readily induced in old subjects, and that a tolerance of the drug was soon established, so that from time to time it had to be given in increased amounts—in short, that the first dose should be fifteen drops t. i. d., and that every three days five drops should be added until a physiological effect is produced, as headache, slight "swimming in the head" or vertigo, or perhaps muscular rigidity. When the patient is seen daily the drug can be pushed to the extent indicated. Practically it was found that thirty to fifty drops was the average amount an old subject—i. e., one after fifty—could take, and forty to eighty the dose the young adult could take. It must be borne in mind that the initial dose must

be small, and that ascending doses, to tolerance, bring about the best results.

It was further pointed out that the drug was most useful, in asthenic and atonic cases, whatsoever the nature of the ailment. The underfed subject who was under weight and suffered from the great group of fatigue symptoms, local and general, singly or combined, was likely to be relieved by this remedy administered in the manner suggested. An example of the local effect of the remedy is seen in cases of eye-strain due to muscular insufficiency, as pointed out recently by de Schweinitz in his usual graphic manner. Whenever there is found a local disorder in the cardiovascular system, the gastrointestinal tract, or other portion of the economy, similar to the asthenic state of the eye muscle, *nux vomica* can be relied upon.

It is to a different local disorder, and one the relief of which at first sight may seem paradoxical, we wish to call attention—i.e., the use of *nux vomica* in ascending doses in hyperchlorhydria or hyperacidity. It is well known that bitters are contraindicated in this state; that sedation rather than stimulation is required. In many instances we have found that sedative measures did not relieve the symptoms. A close study of the groups showed that they belonged to the class that had for its foundation a pure neurosis. In short, the hyperchlorhydria was not the result of a local irritative lesion, but an expression of a gastric neurosis the persistence of which was due to a general atony, or anemia, or a general fatigue neurosis. It is obvious that tonic measures would be required. To this class belong the hyperchlorhydria subjects in whom there is no cause for gastritis and no pronounced evidence of ulcer or gastritis. They bear all the stigmata of an exhaustion neurosis. They are usually thin and wan subjects. They may be hypochondriacal, and are often melancholic. They may have suffered from uterine or ovarian disease, show signs of gastroenteroptosis, or have evidence of chronic cholecystitis, with or without calculi, or of chronic appendicitis, or some other infection. They are usually constipated. The heart is weak, the pulse small and feeble, and the tension low. The urine is at times abundant, watery, and hence of low

specific gravity, but generally is scanty and high colored, of high specific gravity, and contains a faint trace of albumin and a few casts.

The class of cases outlined usually respond to ascending doses of *nux vomica*, and the symptoms of hyperacidity rapidly and often permanently disappear.

THE ACTION OF THE BROMIDE OF AMMONIUM.

BY FRANK CHARTERIS, M.B.,

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The bromide of ammonium is an interesting compound. It is composed of two substances, the actions of which are diametrically opposed. For while ammonium salts are in common use as stimulants, the bromides are universally employed for their depressant effect on the central nervous system. It is thus of importance to determine which of these two actions predominates in the salt. With this view I have performed a series of experiments on frogs and rabbits, the results obtained being of sufficient interest to warrant their publication.

The text-books assume that the bromide of ammonium is a sedative, and as such it is included along with the other bromides. The presence of the ammonium moiety is said to render its action less depressing than that of the bromides of sodium and potassium. With regard to them it must be noted that the action of the bromides is prolonged and comparatively slowly produced, whereas the typical action of an ammonium salt is that of a rapid stimulant which acts within a short time and soon passes off. The attempt to combine this transient stimulant action with the more prolonged depressing bromide effect is, therefore, not likely to be very successful. Researches on the action of bromide of ammonium have not been very numerous nor very extensive, but what little information there is does not favor the view that the compound exerts a bromide action.

The best account is given by Bistroff¹ from experiments on frogs and mammals (cats and rabbits). He concludes

¹Bistroff: *Archiv f. Anat. u. Phys.*, 1868.

that there is no difference between the action of the chloride and the bromide of ammonium. Bromide of ammonium is highly toxic in large doses, causing convulsions and finally paralysis of the central nervous system. The peripheral structures, heart, muscles, and nerves are not affected to a marked degree. My own experiments, carried out on somewhat different lines, partially confirm these findings of Bistroff.

In estimating the effect of the ammonium I endeavored to establish a pure bromide action. For this purpose I used bromide of sodium. The effect of corresponding doses of the bromide of ammonium was then tested, and any difference was put down to the influence of the ammonium. It was found that there was a marked difference between the actions of the two salts.

The bromide of sodium is not a very toxic substance. Frogs can bear as much as two grains, while even three grains injected as a watery solution into the dorsal lymph sac do not necessarily cause death. The immediate effect of the saline solution is locally irritating, but after this has passed off the animal becomes quite lively for some time. After this comes a stage of slight depression. The reflexes are somewhat sluggish and are less easily elicited than normal. There is never any distinct spasmodic action, but next day, in a few cases, the reflexes were slightly increased. The heart was not killed, and the muscles, cord, and nerves responded to the interrupted current. The influence of sodium bromide in the frog is not very marked. It does not at all resemble that of potassium bromide, which, however, is probably largely due to the potassium ion, since it is equally marked with other potassium salts, *e.g.*, the chloride and iodide.

The bromide of ammonium gives a quite different result. After the immediate irritant effect of small doses, from $\frac{1}{4}$ grain upward, has passed off, the frog may for a time be quite lively, but in a short time there is slight muscular twitching of a fibrillary character. The reflex activity may for a few minutes be rather depressed, but within a quarter of an hour after a dose of $11\frac{1}{2}$ grains the reflex response begins to become exaggerated and somewhat jerky in character. With large doses spasms come on spon-

taneously, and the frog presents all the signs of tetanus. The slightest stimulus, as jarring the dish, touching the frog's skin, or even blowing on it, brings on a spasm. The convulsion is succeeded by a period of exhaustion, during which the response to stimulus is diminished. After death the heart is, in a few cases, found to be arrested in diastole, but in most cases it still continues to beat regularly and vigorously. The muscles and peripheral nerves react to electricity. The muscles do not show the immediate change into rigor mortis which is seen after iodide salts.² The blood has a dark-brown tinge which is not due to methemoglobin.

The action of the bromides in the circulation is not marked. This was shown by a series of perfusion experiments. Using a Williams apparatus with defibrinated bullock's blood the isolated frog's heart remains actively beating, in some instances, for as long as four hours. When the bromide of ammonium was added in the proportion of 1 to 1000 it caused some slowing and weakness of the cardiac beat.

Evidently in frogs the bromide of ammonium acts chiefly as an ammonium salt.

The effect on mammals was then determined. For this purpose sodium bromide in 40- and 60-grain doses was administered by a stomach-tube to adult rabbits. A single dose produced no marked effect. In one experiment, after three days of 40 grains, the dose was raised to 60 grains, and on the third day thereafter it was noted that the animal was showing weakness of the hind legs and ataxia. It could not run about freely, but toppled over on its side after running about a yard. The respiratory rate had also fallen to 60 per minute. The drug was then stopped for eight days, at the end of which time the bromide effect had passed off and the animal seemed quite well. The ataxia had disappeared and the respiratory rate had risen to 100. On again giving the drug, two doses of 40 grains brought back the ataxia and the respirations fell to 40 per minute. The back and hind legs became very much affected, and the animal was

²Stockman and Charteris: *Journal of Physiology*, 1901.

unable to run without tumbling over. The reflexes were not increased, and passing the esophageal tube caused no struggling. The eye reflex never disappeared entirely, and the animal ate well.

The action of bromide of ammonium is very different. A single dose of 60 grains administered by the mouth in water produced weakness within a few minutes. The legs began to sprawl, and the animal tended to slip down on its belly. Within fifteen minutes there was a distinct increase in the reflex response. At the end of half an hour the muscular weakness was so marked that the animal was lying on its side. The breathing was affected, and the respirations numbered only 60 per minute. The increase of reflexes showed itself in spontaneous twitching of the limbs, while any cutaneous irritation or jarring of the table gave rise to a spasmodic twitch. This spasmodic condition tended to increase, and eventually reached its acme in a prolonged convulsion with opisthotonos. After this the reflex activity began to diminish, so that at the end of a further quarter of an hour the reflex response was difficult to obtain. By this time the respiratory rate had fallen to 6 to 8 per minute, and finally death occurred from respiratory failure.

Similarly the subcutaneous injection of 17 grains of ammonium bromide produced a great increase of reflex activity, culminating in a general convulsion. The effect gradually passed off and the animal recovered.

The difference in the action of the two salts was well shown by a further series of experiments, in which the action of intravenous injections on the circulation was studied. Bromide of sodium injected in five-grain doses into the jugular vein caused a slight fall followed by a moderate rise in pressure. The rise was not characteristic, and was simply the result of the saline injection. The same effect was got with sodium chloride. In all, 60 grains were injected in forty minutes. At the end of that time the blood-pressure was practically the same as at the commencement of the experiment, but the respiratory rate was reduced. At the commencement it was 11 in ten seconds; at the close it had fallen to 6 in ten seconds.

The bromide of ammonium is quite

different in its action. Even in one-grain doses it causes a very marked rise of pressure, lasting for several minutes, and far exceeding that of the sodium salt. This rise with repeated doses gradually becomes less distinct. After 10 grains in all had been given in eighty minutes, a tendency to spasm was noted, and after the fifteenth grain there was a general convulsion. The respirations became much slowed, and after 20 grains in all death occurred from respiratory failure.

Similarly in another experiment, in which 3½-grain doses were used, a general convulsion was produced after the injection of 15 grains.

ACTION OF AMMONIUM BROMIDE ON BLOOD-PRESSURE OF RABBIT.

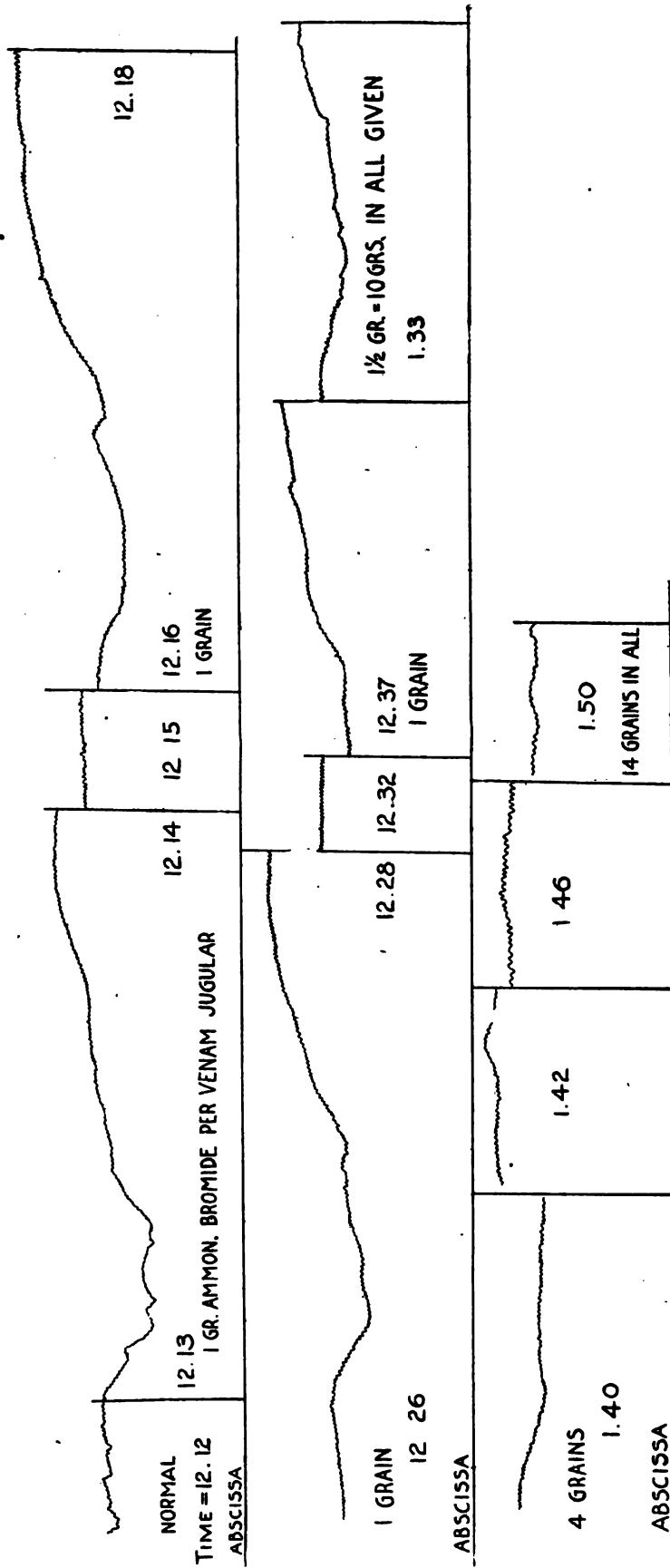
	Time.	Pulse.	Height of Hg.
Normal	xii-10	120	2.7 Cc.
3 grains ammonium bromide per jugular vein.	xii-11	Falls to 42.	Blood-pressure falls to 2.0, then rises to 2.8.
+ 3 grs. ammonium bromide.	xii-15	Falls to 48, then rises to 84.	Blood-pressure falls from 2.5 to 2, then rises to 3.2 Cc.
+ 3 grs. ammonium bromide.	xii-20	96	Blood-pressure falls to 2.5, then rises to 3.3 Cc.
+ 5 grs. ammonium bromide —15 grs. in all.	xii-40 General convulsions.	Falls from 90 to 48.	Blood-pressure rose to 3.8 Cc., falling again in 6 minutes to 2 Cc.

After 30 grains in all had been given death occurred from respiratory failure.

ACTION OF SODIUM BROMIDE ON BLOOD-PRESSURE OF RABBIT.

	Time.	Pulse.	Height of Hg.	Respiration in 10 seconds.
Normal	1-6 P. M.	40	10.3	11-13
10 grains NaBr. Intravenously.....	1-9 11	33	11.	11
+ 10 grains	1-12 14 15 17	33 29 29 30	12. 12. 11.6	13 8 8
+ 10 grains	1-18 20 22	30 30	11.8 11.4	10 8½
+ 10 grains	1-25 28 31	29 28	11.5 11.7	8½ 8½
+ 10 grains	1-32 37 38 40	30 30 30 31	11.3 12. 11.9	8 8 9
+ 10 grains	1-41 44 48 50	31 30 30 30	11.3 11.7 11.8	6 6 6

ACTION OF AMMONIUM BROMIDE ON BLOOD-PRESSURE OF RABBIT.



In doses of 1 grain ammonium bromide caused marked rise in blood-pressure lasting for several minutes, the heart beating more slowly and fully. After repeating the dose a few times the rise is less distinct, and even 4 grains had little effect. After 10 grains there was tendency to spasm, and after 15 grains a convulsion occurred. The respiration became much slowed, and after 20 grains death occurred from respiratory failure.

Using smaller non-toxic doses it is possible to bromise rabbits with ammonium bromide. A rabbit was given daily doses of 40 grains by the mouth. The first dose caused considerable disturbance. The rabbit was distinctly upset. The respiration became rather fast, but there was no distinct increase in the reflex activity. These symptoms passed off within an hour and became much less marked with succeeding doses. After the sixth dose slight bromism was noted about eight hours after the administration. The rabbit showed weakness and ataxia of the hind limbs. On running it seemed to lose control of the hind limbs and frequently tumbled. Next morning only a slight weakness in the hind limbs was apparent, but a further 40 grains caused the reappearance of the weakness and ataxia. The reflexes were not increased. The depression was well marked about six to eight hours after the administration.

These experiments show that by varying the dose either the ammonium or the bromide action can be procured. With large doses the ammonium action is rapidly produced, and the animal may die from convulsions. With the smaller non-toxic dose the bromide effect is eventually obtained. It seems to me that no benefit is obtained from using the combined action of ammonium and bromide. The bromide is only evident after prolonged administration, while the stimulant action of the ammonium is rapidly produced, but passes off within an hour. There is, therefore, little to be gained by using the bromide of ammonium as a less depressing salt than the bromides of sodium or potassium.

CONCLUSIONS.

1. The bromide of ammonium is more toxic than the bromide of sodium.

2. With large doses the predominating action is due to the ammonium, whether the drug be given by the mouth or by subcutaneous or intravenous injection; in sufficient doses it causes convulsions and death from respiratory failure.

3. The effect on the isolated frog's heart is not marked, but on the intact mammalian circulation intravenous injections cause a marked rise of pressure, attended with slowing of the rate and more powerful beat.

4. With repeated non-toxic doses a bromide action may be produced.

CERTAIN PHASES OF UREMIA: THEIR DIAGNOSIS AND TREATMENT.¹

By ARTHUR R. EDWARDS, M.D.,

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Uremia, the most frequent and dreaded complication of nephritis, is chosen as our topic because it constantly confronts not only the general practitioner and internist, but also the surgeon, obstetrician, neurologist, and ophthalmologist.

Typical uremia regularly implicates the nervous, circulatory, respiratory, or digestive systems, while its atypical manifestations may mimic manifold maladies, both functional and organic. In one way uremia rather resembles hysteria, as uremic intoxication is declared not only by its characteristic stigmata but as well by various incongruous, fleeting, and confusing symptoms, whose differentiation may prove difficult or temporarily impossible. Blending the usual with the unusual uremic symptoms, we consider first

(A) *The Nervous Symptoms.*—1. Acute convulsions (eclampsia), probably due to retained toxins irritating the cortex, closely resemble the epileptic attack. There is usually some warning, as pain or pressure in the head, migraine, neuralgia, insomnia, vertigo, visual disturbance, tinnitus, nausea, vomiting, or dyspnea; the epileptic cry is usually lacking. In hours to a day, clonic or tonic convulsions appear, usually generalized but sometimes Jacksonian, and specially involving the flexors or extensors of the arms and legs; the abdomen is retracted, there is dyspnea, cyanosis, and involuntary evacuations; the reflexes, especially the patellar, are increased; the pupils are wide and reactionless; the pulse is full and slow before the attack, but becomes rapid during convulsions. The skin is covered with sweat, and the temperature is usually elevated. The convulsions cease after fifteen to thirty minutes, and coma intervenes, during which the convulsions may recur. Death is the usual outcome, but recovery is possible, as in a case of mine in which the anterior third of the tongue was bitten off.

¹The Address in Medicine before the Mississippi Valley Medical Association, October, 1905.

2. *Other motor manifestations.* The most concise general statement regarding uremic nervous phenomena is that, (a) paralysis affects especially the sensorium, to a lesser degree the special senses, and rarely motility; (b) irritation mostly engages the motor paths (convulsions), seldom selects the sensorium (e.g., delirium), and never implicates the special senses.

Uremic convulsions are usually general: they may, however, resemble focal symptoms, as convulsions only on half the body, e.g., in one-half the tongue, in the left arm and leg, with deviation of the head to the left. Within the month I saw a patient, in rather marked coma, who had a "stroke" on the street. The albuminuria and casts suggested uremia, but the complete hemiplegia, convulsions in the paralyzed members, conjugate deviation, and tense, slow pulse pointed to cerebral hemorrhage. Spinal puncture and venesection immediately relieved every symptom, making uremia their clear cause. Even more deceptive are the rarer cases with convergent strabismus, facial spasm, Jacksonian epilepsy, or nystagmus; tremor, localized trembling and twitchings, muscular cramps, grinding of the teeth, tetanic convulsions, trismus, convulsions on one side and contractures on the other, rigidity of the neck, and opisthotonos are usually misleading.

Paralyses in uremia are infrequent, are chiefly transitory hemiplegias, and are due to cerebral edema, capillary hemorrhage, softening, apoplexy, inflammatory foci, or cortical overstimulation by toxins. Hemiplegia may occur, with aphasia, amnesia, deafness, crossed oculomotor paralysis, glossoplegia, conjugate deviation of the eyes, etc. Another confusion lies in the fact that nephritis, with its concomitant cardiovascular changes, may predispose to brain hemorrhage. Apoplexy rarely completely simulates uremia, though uremia is sometimes characterized by vomiting, slow, tense pulse, coma, complete hemiplegia, and conjugate deviation of the eyes, as outlined in the last case cited. I have reported a series of cases in which uremic paralyses closely simulated meningitis. It is remarkable how closely the two conditions may sometimes correspond.

The brain and retinal changes may

suggest brain tumor by an array of *pressure symptoms*, which may be strikingly relieved by spinal puncture.

3. *Acute coma*, preceded by apathy and stupor, is more frequent without than with convulsions.

4. Among the common *psychical symptoms* of uremia are a characteristic restlessness and anxiety, obstinate headache of a dull, throbbing nature, often beginning in the early morning, sometimes occipital, hemicranic, etc.; insomnia is common, while during the day the patient is often sleepy. Delirium and mania are most frequent in chronic nephritis in adults; melancholia and delusional insanity may occur; these mental states may assume medicolegal importance as to the testamentary capacity of the patient.

5. *Special senses.* Sudden, complete, and bilateral blindness is cortical in origin; this amaurosis may be an initial symptom; the condition lasts but a few hours; there are usually no retinal findings, though exceptionally edema of the disk or even choked disk is found. The pupils are wide and reactionless in acute eclampsia, and small and mobile in chronic uremia. There may be sudden uremic deafness.

(B) *Respiratory or Cardiac Symptoms.*—Dyspnea is very common. It is sometimes toxic and central, occurring in close parallelism with cerebral manifestations. In other cases the asthma uremicum develops when the mind is absolutely clear, whence it is correctly referred to the heart. The dyspnea may be continuous or paroxysmal, and is often nocturnal. Cheyne-Stokes breathing may develop in the daytime or during sleep and is always ominous, though recovery is possible. Moderate arterial tension increases the force of the heart, while excessive tension weakens it. Redundant toxins paralyze the vasomotor nerves. I have frequently observed incipient uremia in which the *prodromal slowing* of the heart to 60 or 40 beats a minute suggested myocarditis, brain changes, or digitalis poisoning.

(C) *Digestive Symptoms* rank, in frequency, second to the nervous. The breath is often offensive and sometimes urinous, which Senator refers to trimethylamine and considers a bad prognostic, as it often precedes eclampsia. The tongue is foul, the mouth inflamed,

and the saliva increased. Nausea, vomiting, hiccough, and diarrhea are partly central and partly local from decomposed urea, eliminated vicariously into the stomach. These symptoms may be very acute. Diarrhea may be serous or dysenteric from the bac. dysenteriae (Flexner). I have observed nine cases in which there were profuse gastrointestinal hemorrhages, resembling bleeding from ulcer. Mathieu and Roux, in a recent study of 23 cases, found "uremic ulcers" chiefly in advanced nephritis in subjects under twenty years; they are rare in the stomach; diarrhea is common, while bowel hemorrhage and constipation are rare. They are seemingly produced by necrosis due to toxemia, though sometimes secondary to submucous hematomata. Healing is very rare, and the prognosis is almost always unfavorable.

In the diagnosis of uremia the three fundamental points important in the diagnosis of nephritis are important, namely: (a) the cardiovascular, (b) the urinary, and (c) the retinal findings.

Skull fractures, miliary tuberculosis, leptomeningitis, cerebral abscess, sepsis, and other diseases may be falsely diagnosed uremia, simply because nephritis was also present. Senator has justly said that without previous history we can often only diagnose a renal disease and suspect other latent affections. The danger of mistaking uremic symptoms, as hemicrania, nervous symptoms, dysentery, etc., for independent disease is greater in direct ratio to difficulty of diagnosis of the nephritis itself. Many authors have remarked on the lack of correspondence between the clinical and pathological findings in nephritis, and Semmola held that clinicians err in considering albumin in the urine the measure of nephritis. I have sometimes felt inclined to state that in some forms of nephritis the less the urinary symptoms the greater are the pathological findings. Uremic intoxication can be regarded as the cause for nervous symptoms only when other causes may be strictly excluded, since in the course of renal disease organic nervous lesions, as hemorrhage and meningitis, may simulate uremia. The clinical diagnosis in such cases is often made with a certain degree of probability.

While the urine is usually decreased before a uremic attack, Liebermeister in-

stances a case in which immediately before a uremic seizure both urine and urea were increased twofold, and Biermer reports an anuria for two hundred and twenty-two hours before uremia appeared. Albumin alone is no proof of uremia, as it occurs in nervous lesions, meningitis, hemorrhage, epilepsy, etc.

A discussion of cryoscopy will be omitted, as its rapid clinical application is still somewhat uncertain, though increased molecular concentration of the blood with its lowered freezing-point usually means disease of both kidneys.

TREATMENT.

This cannot be systematic, since the actual mechanism of uremia is imperfectly known. It is probably an auto-intoxication, with perhaps a mechanical element, as circulatory changes or increased intracranial pressure. We will consider together the general subject of renal therapeutics and that of the particular complication, uremia.

1. *Prevention* and causal treatment have a very limited practical application. Irritating foods, excessive eating, all forms of intemperance, overwork, neglect of infections and dyspepsia, etc., come under this head, though usually too late.

2. *Rest, exercise.* The kidneys are known to be relieved by rest in the horizontal posture, since exertion and even the erect position, which *per se* may cause albuminuria, only increase preëxisting albuminuria. If in severe cases exercise seems advisable, it should be given passively with the patient in the recumbent posture. The rest should be absolute as long as the heart is weak, the urine scanty, or hydrops considerable. The importance of rest in bed was recognized as far back as the times of Bright and Bartels. With moderate renal involvement, or in intervals of improvement, relative restriction is still to be enforced. Rest in bed not merely lessens the amount of waste products to be eliminated by the kidneys, but also so protects the skin and dilates its vessels that the cutaneous functions become more active and relieve the vascular tension within the renal circuit. I have treated two severe cases of parenchymatous nephritis with rest abed for a year with absolute recovery. In a patient remaining abed for a cold, we note the great activity of the skin and the still more

remarkable activity of the kidneys when the body surface is warm. I have sometimes wondered if this is not at least one of the reasons why nephritics pass more urine at night. At any rate, fatigue, damp, and cold must be avoided, an indication certainly best met by rest abed during the time of severe symptoms or of acute exacerbations, and by relative rest and warm clothing in cases of moderate severity. In the recent instability and reaction of renal therapeutics, it is interesting to note that moderate exercise is again recommended. Practitioners do not sufficiently insist on psychical rest. In men leading the strenuous life I have often seen nephritis decrease and sometimes disappear when nervous tension was relieved. Too often these subjects take physical exercise or courses of training after they were already exhausted by head work. Exercise in general should supplant work, and not be taken after or in addition to hard, nervous strain.

3. *Springs and climate.* Only those without edema and serious heart involvement should be sent to such places as Poland, Bedford, Saratoga, Vichy, Nauheim, etc. A stay in the California, Mississippi, and North Carolina climate, during the winter at least, will materially benefit.

4. The *diet* must be non-irritative; it must not especially tax the kidney in its elimination; it must not burden the circulation, and it must maintain nutrition. Disease of the glomeruli alone may be compensated by vicarious excretion of water through the lungs, skin, and intestines, but disease of the tubules, whose function is the elimination of the end-products of albuminoid metabolism, cannot be well compensated by other structures, whence the indication for limitation of albuminous foods and their replacement by fats and carbohydrates. The amount of albumin lost through the kidneys is small and can easily be met, e.g., by a glass or two of milk daily, wherein nephritis differs from diabetes, in which the system not only is irritated by unappropriated sugar, but loses a vast amount of heat and energy units each day. The albuminous food is restricted only to spare irritation of the excreting renal cells; no absolute rule can be laid down for all cases. It seems that in health double the amount of nitrogenous food

necessary to metabolism and maintenance is ingested. It is an obvious mistake to gauge the severity of a nephritis by the degree of albuminuria or to estimate improvement by the influence of diet upon the albuminuria alone. Fats, as butter, olive and cod-liver oils, cream, etc., are very important. As in diabetes, however, the restriction must not merely concern renal irritation, but also, above all, the maintenance of nutrition, especially in parenchymatous nephritis, the very form where diet restriction is most demanded theoretically. Anemia and disturbed nutrition are perhaps the most distinguishing features of the parenchymatous as contrasted with the interstitial type of nephritis. The individual patient must be considered above and beyond the disease *per se*, or the type of the disease.

The milk diet is free of extractives, is easy of digestion, and is a diuretic. It has its restrictions; it is bulky, over four quarts being necessary to maintain nutrition, and therefore may cause dyspepsia; it lacks iron, which can be easily compensated; four quarts contain an excess of about 60 per cent of proteid; it contains too much water, thereby overloading the blood and straining the heart; and its phosphates and chlorides tax the kidneys. Like every other good thing, it has been abused. One to one and a half quarts of milk with a pint of cream, fats, and carbohydrates (baby foods, sago, rice, potatoes, etc.) will meet the needs of metabolism; much, sometimes over half, of its phosphates can be precipitated and kept in the intestine and away from the blood and kidneys by giving calcium carbonate 5 to 10 grains with the milk (von Noorden). It should be taken slowly, in sips, remembering it is a food and not a drink. In the excessive swings of the therapeutic pendulum, milk, once so popular, has been neglected, but is now regarded with more respect, as it contains so little sodium chloride.

Regarding *meat*, there is much more liberality at present, though probably the reaction is extreme, as Strubell's recent experiments demonstrate that a meat diet favors uremia. The average amount allowed by von Noorden is 100 grammes daily. There is absolutely no difference between red and white meats as to extractives, purin bodies, etc., as proven by Walker Hall, Kaufman, Mohr, and

others. Some meat is better than overloading the stomach and bowels with a bulky vegetable diet, save when toxins redound, as in uremia. Then all substances containing nitrogen should be restricted, not merely meat, but also the leguminous vegetables and perhaps even milk.

Not more than two eggs are allowed. Raw eggs increase and perhaps induce albuminuria.

Substances excreted with difficulty include the following, according to von Noorden: Urea (in meat), creatin (in meat broths, extractives, and to a less extent in eggs), urinary pigments (in hemoglobin), hippuric acid (in cranberries, fruits with pits, as prunes, plums, and gages), phosphates (in milk), and inorganic sulphates (in meat); uric acid and alloxur bodies, contrary to the usual view, are, according to von Noorden, eliminated readily (in glandular organs, thymus, sweetbreads, liver, kidney, broths, and, according to Taylor, in coffee).

The chlorides are specially avoided in parenchymatous nephritis with edema. As pointed out by Widal, Lemerre, Javal, Mercklen, and Courmont in 1903, salt increases the weight, induces edema, and aggravates albuminuria, while "dechlorination" of the food reduces weight, edema, and albuminuria. It is well that we remain somewhat conservative regarding the recent developments in the salt question; at any rate, it is separate from those retained substances producing uremia.

Irritants, as cheese, relishes, horseradish, onions, rhubarb, asparagus, spices, sauces, broths, beef tea, and alcoholics, should be absolutely avoided, and tea and coffee taken only with the greatest moderation, since they may aggravate or indeed produce nephritis (Penzoldt, Hubach).

5. *Water*. The same extremes of opinion are noted: once fluids are excessively restricted, and more lately undue quantities are recommended; von Noorden states, in assuming a more middle ground, that the flooding of the vascular system with water overtakes and ultimately damages the heart. Water can only be excreted by the kidneys if the blood-pressure is increased; it is difficult to directly demonstrate that the heart is

damaged by excessive water-drinking, as the arterial system is notably elastic, but many weak hearts give a history of excessive water-drinking for long periods of time; in cases of this kind improvement is frequent if the water is limited to about 1500 cubic centimeters daily.

6. *Symptomatic Therapeutic Measures*.—Diuretics are generally futile, and are, we believe, best avoided. Diuretin is said to produce no renal hyperemia, but to act directly on the epithelium; it may be employed, and sometimes with success, particularly with digitalis and reduced salt administration. Diuretics are considered indicated by increasing hydrops, scanty urine, and imminent uremia. The refrigerants, as cream of tartar or potassium citrate, alone are safe; they are held to abstract water from the tissues and to convert urea, uric acid, etc., into more readily excreted substances; they seem most active in the effervescent form. Basham's mixture, as a tonic and diuretic, is best given in doses of 1 to 2 drachms.

7. *Hydrops*. Edema demands treatment, since it forbids movement, threatens suffocation by pulmonary, laryngeal, or other edema, increases the danger of secondary infections, as erysipelas or cellulitis, and embarrasses the circulation by pressure on the afferent capillaries as well as on the efferent lymphatics and venules. Edema interferes with digestion and increases the danger of uremia.

(a) While *cathartics* may eliminate fluids as well as solids, drastics must be given with considerable care regarding digestion and nutrition.

(b) *Sweats* are much in vogue, possibly less so of late. While the functional reciprocity between the skin and kidneys cannot be overestimated, profuse sweating eliminates fluids rather than solids, and Leube holds that sweats concentrate the blood and therefore rather predispose to uremia, stating that a patient sweating 1000 cubic centimeters evacuates only half a gramme of urea. I have oftener seen aggravation of symptoms, or indeed a fatal issue, than relief after sweating, and therefore prefer the old-fashioned full warm bath, recommended by Osborne and Liebermeister, to the more active methods—e.g., the hot air or alcoholic sweats. In this method an ice-bag is placed on the head to prevent

brain congestion; commencing with water at body temperature, the bath is raised five or six degrees. After twenty or thirty minutes the patient is removed and wrapped without drying in blankets.

Pilocarpine is unsafe, its drawbacks including profuse salivation, vomiting, diarrhea, syncope, and pulmonary edema.

(c) The mechanical relief by *incisions* is superior to all other measures which must first bring the fluid, with all its urea and extractives, into the circulation, with the ever present danger of producing or aggravating uremia. The already impure blood is again contaminated from the toxic deposits in the edematous tissue. If the kidneys and other emunctories cannot relieve the blood, how can they remove the additional refuse in the anasarca fluid, maybe amounting to quarts, which comes to the blood from the tissues? I have experimented even with mild cases, employing deep, three-inch long, incisions over the lower leg whenever the hydrops is at all extensive. In testing the fluid evacuated, I have frequently obtained 0.1 to 0.2 per cent urea, which may serve as a measure for other retained products of kindred nature. When quarts seep out during the first twenty-four hours, one is well justified in incising the legs, despite the remote danger of occasional infection. Sweats and drugs never achieve equal results. Free incision is obviously less dangerous than punctures or Southey's capillary tubes.

8. *The circulation.* Treatment often resolves into care and stimulation of the heart. Mental excitement, nervous strain, physical exertion, tobacco, coffee, alcohol, exposure to heat, constipation, etc., must be avoided for the sake of the heart. The more the heart hypertrophies the better and the longer the outlook, although ultimate cardiac dilatation is the inevitable of every hypertrophy, unless indeed death comes sooner under the strain of pneumonia, pleurisy, etc. In the uremic seizures, with precisely the same picture in other respects, the heart may vary, beating too strongly or too weakly.

(a) With *cardiac overaction*, especially observed early in uremia, angiospasm or high tension may be corrected by vasodilators. Iodides are good when no urgency is present; salivation may

result rather readily from renal retention. When extreme tension and imminent uremia exist, tr. veratri viridi mins. v-x every half-hour for three or four doses may be given, or large doses of nitroglycerin gr. 1/50 to 1/20 till results are seen. I believe the vasodilators are often given to excess, as hypertrophy and increased arterial tension are not merely pathological but compensatory conditions. Bleeding may so relieve the intracranial blood-pressure as to remove for the time the uremia, but too often it does not. It may be followed by subcutaneous salines by the rectum, which serve as a "lavage of the blood" and stimulate the dormant kidneys if enough sound tissue be left to appeal to. Increased intracranial tension may be relieved by lumbar puncture of the spinal cavity. The normal tension of 120 mm. in the water column is often increased, sometimes to 500 or 600. During the last year I have seen repeated and sometimes protracted relief in medical and eclamptic cases; the headache, vomiting, convulsions, and coma are often decreased or abolished.

(b) When the *heart is weak*, when it becomes rapid, irregular, or galloping, cardiac stimulation by digitalis and strychnine is indicated. Infusion of digitalis may cause vomiting, when 2 to 5 minims of the fluid extract may be given hypodermically or by rectum. Its combination with squills or calomel is inadvisable, as the latter may cause the most intense salivation. Cardiac unrest, palpitation, or dyspnea is met by hypodermics of morphine, application of ice to the heart, champagne, nitroglycerin, bromides, and valerian. Venesection lessens the molecular concentration of the blood—i.e., its toxicity—and relieves the laboring heart; infusions operate in the same way; in infusions an excess of salt may be given ("dechlorination"). In repeated infusions the salt should be left out. In the recent enthusiasm over dechlorination salt infusions are decried, but it requires more than theory to wean us from them. The wasted, small kidneys seen at autopsy explain the frequent therapeutic failures. Pilocarpine and sweats are distinctly contraindicated, since they overtax or fatally depress the heart.

9. *Vomiting* and *diarrhea* are often

vicarious as well as cerebral, and should not be checked at once. Gastric lavage and colonic flushings are reasonable procedures.

10. *Convulsions* call for hypodermics of morphine, as advised by Loomis and Mackenzie; I never saw harm from morphine, though medical opinion is generally adverse to its use. Chloral, 15 grains every hour for not more than four doses, aids the morphine, while bromides generally act too slowly.

11. *Surgical treatment* is still *sub judice*. It is certain that many cases of "decapsulated" kidney were not genuine nephritis, but rather albuminuria from floating kidney, ascending infection, etc. Again, it is still a question whether chronic nephritis is merely a renal disease or perhaps a result of a general blood state, an idea early advanced by Semmola, though not yet unproven.

In conclusion, I do not wish to appear to classify as fads some of the recent attempts to solve the complicated questions of nephritis. The milk diet has doubtless been overdone, water has been given in excess, patients have been over-dieted, etc.; but I believe there has been a tendency of late to unreasonably revolt at our time-honored, if somewhat empirical, methods of treatment. Most of them will probably be reconciled to some of the recent revelations on this subject, and a reversion to the older therapy seems likely. We must remember that the practical physician attains the best results by individualizing, not by schematizing.

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RADICAL CHANGES IN THE EIGHTH DECENNIAL REVISION OF THE PHARMACOPŒIA OF THE UNITED STATES.

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It was expected that the Committee on Revision, elected by the Convention for Revision of the United States Pharmacopœia, would have their work completed so that the book would be ready for publication and distribution not later than the summer of 1903. The long illness, followed by the death, of Dr. Rice, the president of the Committee on Revision, and also the enormous amount of labor entailed delayed the publication of

the work until about August, 1905. The new Pharmacopœia became official in September, 1905, so that few of us were fully prepared, in so short a time, to accept and put into practice the changes suggested. The pharmacists, both wholesale and retail, were no better prepared than the physician. It would be well to have the new Pharmacopœia, in the future, become official six months after its publication.

It would be beyond the scope of this paper to discuss in detail all the drugs dismissed and added, but an attempt will be made to point out, in the fewest words possible, some of the more important changes. These may be considered under the following headings:

Articles dismissed from the Pharmacopœia.

Articles added to the Pharmacopœia.
Changes in official names.

Changes in the strength of various preparations.

The stating of the average dose of various preparations for internal administration.

Three other changes which we shall mention but not discuss are: the change in the thermometric degree at which solubilities are calculated; the adoption of the hydrogen 1 standard instead of the oxygen 16 standard for calculating the molecular weights of chemicals; and the stating of the structural formula of each chemical.

It may be of interest to give a detailed list of the 155 drugs and preparations dismissed, as they consist principally of obsolete and useless substances which have been little employed in recent years. While not intending to reflect upon the wisdom of the Committee on Revision, it is to be regretted that Anthemis, Calamus, Calendula, Chimaphila, Eupatorium, Hedeoma, Lappa, Marrubium, Matico, Pyrethrum, and a few other antiquated barks and leaves were not discarded also.

ARTICLES DISMISSED FROM THE PHARMACOPŒIA.

Absinthium.
Acidum Carbolicum Crudum.
Alcohol Deodoratum.
Allium.
Ammoniacum.
Ammonii Nitras.
Antimonii Oxidum.
Antimonii Sulphidum.
Antimonii Sulphidum Purificatum.
Antimonium Sulphuratum.

Argenti Iodidum.
 Arnicæ Radix.
 Asclepias.
 Aspidosperma.
 Barii Dioxidum.
 Byronia.
 Cascarilla.
 Castanea.
 Catechu.
 Caulophyllum.
 Ceratum Cetacei.
 Cetraria.
 Charta Potassii Nitratis.
 Chelidonium.
 Chenopodium.
 Cinchonina.
 Cinnamomum Cassia.
 Crocus.
 Decoctum Cetrariæ.
 Decoctum Sarsaparillæ Compositum.
 Dulcamara.
 Elixir Phosphori.
 Emplastrum Ammoniaci cum Hydrargyro.
 Emplastrum Arnicæ.
 Emplastrum Ferri.
 Emplastrum Ichthyocollæ.
 Emplastrum Picis Burgundicæ.
 Emplastrum Picis Cantharidatum.
 Emplastrum Resinæ.
 Emulsum Ammoniaci.
 Extractum Aconiti.
 Extractum Arnicæ Radicis.
 Extractum Arnicæ Radicis Fluidum.
 Extractum Asclepiadis Fluidum.
 Extractum Aspidospermatis Fluidum.
 Extractum Castaneæ Fluidum.
 Extractum Cinchonæ.
 Extractum Colchici Radicis Fluidum.
 Extractum Conii.
 Extractum Cusso Fluidum.
 Extractum Dulcamaræ Fluidum.
 Extractum Gossypii Radicis Fluidum.
 Extractum Iridis.
 Extractum Iridis Fluidum.
 Extractum Jalapæ.
 Extractum Juglandis.
 Extractum Lobeliæ Fluidum (hydro-alcoholic menstruum).
 Extractum Menispermis Fluidum.
 Extractum Podophylli.
 Extractum Rumicis Fluidum.
 Extractum Sanguinarie Fluidum (hydro-alcoholic menstruum).
 Extractum Scillæ Fluidum (hydro-alcoholic menstruum).
 Extractum Scoparii Fluidum.
 Extractum Stramonii Seminis.
 Extractum Stramonii Seminis Fluidum.
 Extractum Uvæ Ursi.
 Ferri Iodidum Saccharatum.
 Ferri Lactas.
 Ferri Valerianas.
 Glyceritum Vitelli.
 Guaiaci Lignum.
 Hydrargyri Cyanidum.
 Hydrargyri Subsulphas Flavus.
 Ichthyocolla.
 Illicium.
 Infusum Cinchonæ.
 Inula.
 Iris.
 Juglans.
 Kamala.
 Linimentum Sinapis Compositum.
 Liquor Ferri Acetatis.
 Liquor Ferri Citratis.
 Liquor Ferri Nitratis.
 Liquor Sodii Silicatis.
 Macis.
 Massa Copaibæ.
 Melissa.
 Menispermum.
 Oleatum Zinci.
 Oleum Aurantii Florum.
 Oleum Bergamottæ.
 Oleum Myrciæ.
 Oleum Phosphoratum.
 Oleum Sesami.
 Pepsinum Saccharatum.
 Phytolacæ Fructus.
 PicROTOXINUM.
 Pilulæ Aloes et Asafœtidæ.
 Pilulæ Antimonii Compositæ.
 Pilulæ Rhei.
 Pix Burgundica.
 Plumbi Carbonas.
 Potassa cum Calce.
 Potassa Sulphurata.
 Pulsatilla.
 Pulvis Antimonialis.
 Quinidinæ Sulphas.
 Quininæ Valerianas.
 Resina Copaibæ.
 Rhus Toxicodendron.
 Rosa Centifolia.
 Rubus Idæus.
 Rumex.
 Sambucus.
 Sodii Carbonas.
 Sodii Carbonas Exsiccatus.
 Spiritus Aurantii.
 Spiritus Limonis.
 Spiritus Myrciæ.
 Spiritus Myristicæ.
 Spiritus Phosphori.
 Stramonii Semen.
 Strontii Lactas.
 Syrupus Allii.
 Syrupus Althææ.
 Syrupus Hypophosphitum cum Ferro.
 Syrupus Rubi Idæi.
 Tabacum.
 Tanacetum.
 Tinctura Arnicæ Radicis.
 Tinctura Byroniæ.
 Tinctura Catechu Composita.
 Tinctura Chiratzæ.
 Tinctura Croci.
 Tinctura Cubebæ.
 Tinctura Humuli.
 Tinctura Matico.
 Tinctura Rhei Dulcis.
 Tinctura Stramonii Seminis.
 Tinctura Sumbul.
 Trochisci Catechu.
 Trochisci Cretæ.
 Trochisci Ferri.
 Trochisci Ipecacuanhæ.
 Trochisci Menthæ Piperitæ.
 Trochisci Morphine et Ipecacuanhæ.
 Trochisci Zingiberis.
 Unguentum Plumbi Carbonatis.
 Unguentum Plumbi Iodidi.
 Unguentum Stramonii (Seed).
 Vinum Colchici Radicis.
 Vitellus.
 Zinci Phosphidum.

The only preparations dismissed about which we think some question might arise are the Elixir and Spirit of Phosphorus, the Wine of Colchicum Root, and the Extract of Aconite. We have now no preparations of phosphorus convenient for administration to young children who cannot take medicine in

the form of pills or capsules. The Elixir of Phosphorus was agreeable and convenient, and contained one milligramme of phosphorus in each 4 cubic centimeters of the elixir, or in ordinary weights and measures about 1/64 of a grain of phosphorus to a fluidrachm of the elixir. The Wine of Colchicum Root, dismissed, is probably more extensively employed than the Wine of Colchicum Seed, retained. We were at first inclined to question the advisability of the dismissal of Extract of Aconite, it being the only solid preparation of this drug—it was the only one suitable for pills—but upon second thought we are convinced that aconite is seldom used in pill form, and if it is desired, powdered aconite may be employed. Aconitine, now official, is not considered therapeutically identical with aconite, and therefore cannot be considered a suitable substitute for the Extract of Aconite.

LIST OF ARTICLES ADDED TO THE PHARMACOPŒIA, WITH AVERAGE DOSES
FOR ADULTS.

(When no dose is stated not intended for internal use.)

The following one hundred and seventeen chemicals, drugs, and preparations have been added to the new Pharmacopœia:

Acetonum.
Acetphenetidinum. Dose, 0.5 Gm.—7½ grains.
Acidum Camphoricum. Dose, 1.0 Gm.—15 grains.
Acidum Hydriodicum Dilutum. Dose, 0.5 Cc.—8 minims.
Acidum Hypophosphorosum.
Acidum Trichloroaceticum.
Aconitina. Dose, 0.00015 Gm.—1/400 grain.
Adeps Lanæ.
Aethylis Carbamas. Dose, 1.0 Gm.—15 grains.
Aethylis Chloridum.
Ammonii Salicylas. Dose, 0.250 Gm.—4 grains.
Antipyrina. Dose, 0.250 Gm.—4 grains.
Aqua Hamamelidis. Dose, 8.0 Cc.—2 f3.
Aqua.
Benzaldehydum. Dose, 0.03 Cc.—½ minim.
Benzinum Purificatum.
Benzosulphinidum. Dose, 0.200 Gm.—3 grains.
Berberis. Dose, 2.0 Gm.—30 grains.
Bismuthi Subgallas. Dose, 0.250 Gm.—4 grains.
Bismuthi Subsali-cylas. Dose, 0.250 Gm.—4 grains.
Bromoformum. Dose, 0.2 Cc.—3 minims.
Cataplasma Kaolini.
Ceratum Resinæ Compositum.
Chloralformamidum. Dose, 1.0 Gm.—15 grains.
Cinnaldehydum. Dose, 0.05 Cc.—1 minim.
Cocaina. Dose, 0.030 Gm.—½ grain.
Codeinæ Phosphas. Dose, 0.030 Gm.—½ grain.
Codeinæ Sulphas. Dose, 0.030 Gm.—½ grain.
Colchicina. Dose, 0.0005 Gm.—1/200 grain.

Cresol. Dose, 0.05 Cc.—1 minim.
Elixir Adjuvans. Vehicle.
Elixir Ferri, Quinina et Strychnina Phosphatum. Dose, 4.0 Cc.—1 f3.
Emplastrum Adhæsivum.
Emulsum Olei Morrhua. Dose, 8.0 Cc.—2 f3.
Emulsum Olei Morrhua cum Hypophosphitibus. Dose, 8.0 Cc.—2 f3.
Emulsum Olei Terebinthina. Dose, 4.0 Cc.—1 f3.
Eugenol. Dose, 0.2 Cc.—3 minims.
Extractum Malti. Dose, 16.0 Cc.—4 f3.
Extractum Rhamni Purshiana. Dose, 0.250 Gm.—4 grains.
Extractum Scopolæ. Dose, 0.010 Gm.—1/5 grain.
Extractum Stramonii. Dose, 0.010 Gm.—1/5 grain.
Extractum Sumbul. Dose, 0.250 Gm.—4 grains.
Fluidextractum Berberidis. Dose, 2.0 Cc.—30 minims.
Fluidextractum Euonymi. Dose, 0.5 Cc.—8 minims.
Fluidextractum Granati. Dose, 2.0 Cc.—30 minims.
Fluidextractum Lobelia. Dose, 0.5 Cc.—8 minims.
Fluidextractum Quercus. Dose, 1.0 Cc.—15 minims.
Fluidextractum Quillaja. Dose, 0.2 Cc.—3 minims.
Fluidextractum Rhamni Purshiana Aromaticum. Dose, 1.0 Cc.—15 minims.
Fluidextractum Sanguinaria (Acetic Acid Menstruum). Dose, 0.1 Cc.—1½ minims.
Fluidextractum Scilla. Dose, 0.1 Cc.—1½ minims.
Fluidextractum Scopolæ. Dose, 0.05 Cc.—1 minim.
Fluidextractum Staphisagria. Dose, 0.05 Cc.—1 minim.
Fluidextractum Stramonii. Dose, 0.05 Cc.—1 minim.
Fluidextractum Sumbul. Dose, 2.0 Cc.—30 minims.
Gambir. Dose, 1 Gm.—15 grains.
Gelatinum.
Gelatinum Glycerinatum.
Glandula Suprarenales Siccæ. Dose, 0.250 Gm.—4 grains.
Glandula Thyroidea Siccæ. Dose, 0.250 Gm.—4 grains.
Glyceritum Ferri, Quinina et Strychnina Phosphatum. Dose, 1.0 Cc.—15 minims.
Guaiacol. Dose, 0.5 Cc.—8 minims.
Guaiacolis Carbonas. Dose, 1.0 Gm.—15 grains.
Hamamelidis Cortex. Dose, 2.0 Gm.—30 grains.
Hexamethylenamina. Dose, 0.250 Gm.—4 grains.
Homatropina Hydrobromidum. Dose, 0.0005 Gm.—1/128 grain.
Hydrastina. Dose, 0.010 Gm.—1/5 grain.
Iodolum. Dose, 0.250 Gm.—4 grains.
Kaolinum.
Liquor Antisepticus. Dose, 4.0 Cc.—1 f3.
Liquor Cresolis Compositus.
Liquor Formaldehydi.
Liquor Sodii Phosphatis Compositus. Dose, 8.0 Cc.—2 f3.
Magnesii Sulphas Effervescens. Dose, 16.0 Gm.—240 grains.
Maltum.
Mangani Hypophosphis. Dose, 0.200 Gm.—3 grains.
Methylthionina Hydrochloridum. Dose, 0.250 Gm.—4 grains.
Oleatum Atropina.
Oleatum Cocaina.

Oleatum Quininæ.
 Opium Granulatum. Dose, 0.085 Gm.—1 grain.
 Paraffinum.
 Pelletierinæ Tannas. Dose, 0.250 Gm.—4 grains.
 Petrolatum Album.
 Phenol Liquefactum. Dose, 0.05 Cc.—1 minim.
 Pilocarpinæ Nitras. Dose, 0.010 Gm.—1/5 grain.
 Pilulæ Laxativæ Compositæ. Dose, 2 pills.
 Pilulæ Podophylli, Belladonnæ et Capsici. Dose, 1 pill.
 Pulvis Acetanilidi Compositus. Dose, 0.500 Gm.—7½ grains.
 Quininæ Salicylas. Dose, 0.250 Gm.—4 grains.
 Sabal. Dose, 1.0 Gm.—15 grains.
 Safrolum. Dose, 0.3 Cc.—5 minims.
 Scopolæ. Dose, 0.045 Gm.—¾ grain.
 Scopolaminæ Hydrobromidum. Dose, 0.0005 Gm.—1/128 grain.
 Serum Antidiphthericum. Dose, 3000 units; immunizing dose for well persons, 500 units.
 Sodii Arsenas Exsiccatus. Dose, 0.003 Gm.—1/20 grain.
 Sodii Carbonas Monohydratus. Dose, 0.250 Gm.—4 grains.
 Sodii Citras. Dose, 1.0 Gm.—15 grains.
 Sodii Phosphas Effervescens. Dose, 8.0 Gm.—120 grains.
 Sodii Phosphas Exsiccatus. Dose, 1.0 Gm.—15 grains.
 Strontii Salicylas. Dose, 1.0 Gm.—15 grains.
 Strophanthinum. Dose, 0.0003 Gm.—1/200 grain.
 Strychninæ Nitras. Dose, 0.001 Gm.—1/64 grain.
 Sulphonethylmethanum. Dose, 1.0 Gm.—15 grains.
 Sulphonmethanum. Dose, 1.0 Gm.—15 grains.
 Syrupus Hypophosphitum Compositus. Dose, 8.0 Cc.—2 f5.
 Talcum.
 Talcum Purificatum.
 Thymolis Iodidum.
 Tinctura Gambir Composita. Dose, 4.0 Cc.—1 f5.
 Tinctura Limonis Corticis. Flavor.
 Tinctura Stramonii. Dose, 0.5 Cc.—8 minims.
 Trochisci Gambir. Dose, one as required.
 Unguentum Acidi Borici.
 Unguentum Hydrargyri Dilutum.
 Unguentum Stramonii.
 Unguentum Zinci Stearatis.
 Vanillinum. Dose, 0.030 Gm.—½ grain.
 Vinum Cocæ. Dose, 16.0 Cc.—4 f5.
 Zinci Phenolsulphonas. Dose, 0.125 Gm.—2 grains.
 Zinci Stearas.

Although all are of interest to us, it will be impossible in this paper to discuss each article. Allusion will be made to some of the most important.

Acetonum (Acetone) is a volatile liquid containing 99 per cent of absolute acetone (dimethylketone); it is a good solvent for oils and resins, and replaces ether in the manufacture of a number of oleoresins. It is cheaper, and not inflammable. It is used also in the manufacture of chloroform and sulphonmethane. The liquid is of little therapeutic value, but

in the treatment of diarrhea, gout, and rheumatism. It may be given in doses of from 15 to 20 drops.

Acetphenetidinum (Acetphenetidin) is the official name of phenacetine.

Acidum Hydrobromicum Dilutum (Diluted Hydrobromic Acid) is reintroduced, having been dismissed from a former Pharmacopœia on account of the difficulty of preserving it. The acid contains not less than 10 per cent of absolute hydrogen iodide. A small quantity of hypophosphorous acid enters into the manufacture of this, and acts as a preservative, by reducing any iodine set free to hydrogen iodide. The pharmacopœial dose is stated at 0.5 Gm., or 8 minims.

Acidum Trichloraceticum (Trichloroacetic Acid) is made by oxidizing hydrated chloral with nitric acid. It is seen as white, deliquescent crystals. It undergoes some change in alcohol, and is decomposed by boiling water, with production of chloroform and carbon dioxide. It may be employed as a cauterant. It is used as a reagent for the detection of albumin in urine and milk.

Aconitina (Aconitine) of the *crystalline* variety is now official. Aconitine was dropped from a former Pharmacopœia on account of the variable composition of the substance then official. This *crystalline* alkaloid is not open to this objection, but physicians should insist upon the official article being furnished, as there are still a number of varieties of aconitine on the market, some crystalline, some amorphous, varying greatly in strength and action. The pharmacopœial dose is given at 0.00015 Gm., or 1/400 gr.

Adeps Lanæ (Wool-fat). Wool-fat deprived of water by heat. More suitable as an ointment base than the hydrated wool-fat, which is official also.

Aethylis Carbamas (Ethyl Carbamate) is the pharmacopœial name for the hypnotic, commonly known as urethane, introduced for the first time into the Pharmacopœia. The average dose is 1.0 Gm., or 15 grains.

Aethylis Chloridum (Ethyl Chloride). The general and local anesthetic is also known as Chelene or Kelene, and enters into the composition of several proprietary mixtures used as general and local anesthetics. Among these may be mentioned anæsthol, somnoform, anes-

largely of ethyl chloride mixed with methyl chloride, chloroform, ether, or combinations of all. It should not be forgotten that ethyl chloride and its vapors are highly inflammable.

Aqua Hamamelidis (Hamamelis Water) is made by distilling hamamelis bark with water, and adding 15 per cent of alcohol. It is intended to take the place of a well known proprietary article.

Benzosulphinidum, also known as Saccharin, is admitted to the new Pharmacopœia, and tests for its identification and purity are given.

Bismuthi Subgallas (Bismuth Subgallate) is intended to replace dermatol. The pharmacopœial dose is 0.250 Gm., or 4 grains.

Chloralformamidum (Chloralformamide), the hypnotic, is also known as Chloralamidum. It is made by acting upon anhydrous chloral with formaldehyde. Boiling water and alkalies decompose it, liberating chloroform. Average dose 1.0 Gm.—15 grains.

Elixir Adjuvans (Adjuvant Elixir) is simply a mixture of equal parts of fluid extract of glycyrrhiza and aromatic elixir. It is a good vehicle for bitter and salty remedies.

Elixir Ferri, Quininae et Strychninae Phosphatum (Elixir of Iron, Quinine, and Strychnine Phosphate) is extensively employed but has never been official heretofore. It is disagreeable to the taste, destroys rather than creates appetite, and deranges instead of promotes digestion. If such a combination of drugs is thought to be desirable, they should be put into pill form. The elixir is made by adding the glycerite of iron, quinine, and strychnine phosphate to aromatic elixir. Each teaspoonful contains about 1 grain of ferric phosphate, $\frac{1}{2}$ grain of quinine, and $\frac{1}{64}$ grain of strychnine, along with a little phosphoric acid. The dose of the elixir is one fluidrachm, and of the glycerite 15 minims. The latter preparation is four times as strong as the elixir.

Cresol (Cresol), sometimes erroneously called cresylic acid, is a mixture of three isomeric cresols from coal-tar. It enters into the preparation of *Liquor Cresolis Compositus*, of which it forms 50 per cent. This liquor is made by saponifying 50 per cent of cresol with 35 per cent of linseed oil and 8 per cent of potassium hydroxide.

Compositus is introduced into the Pharmacopœia to take the place of creolin, lysol and several other antiseptic preparations of this class. It corresponds most closely with lysol.

Fluidextractum Rhamni Purshiana Aromaticum (Aromatic Fluid Extract of Cascara Sagrada) is of the same strength in cascara bark as the fluid extract of cascara. It differs from that preparation in being devoid of bitter principles, and in the addition of aromatics.

Gambir (Gambir) is an extract prepared from the leaves and twigs of a stout, woody vine of the East Indian Islands. It is introduced to replace Catechu, which is now difficult to obtain, and was probably being largely adulterated and substituted.

Compound Tincture of Gambir now replaces the Compound Tincture of Catechu, and the Troches of Gambir replace the Troches of Catechu.

Glandulae Suprarenales Sicca (Desiccated Suprarenal Glands), as official, should furnish us with a reliable product. It is a clean, dry powder made from the suprarenal glands of the sheep and ox, freed from fat. One part of the powder represents six parts of the fresh glands. The Pharmacopœia gives no assay process nor physiological tests for determining the strength of the remedy. The average dose is given as 0.250 Gm., or 4 grains.

Glandulae Thyroideae Sicca (Desiccated Thyroid Glands) is a clean, dry powder from the fresh glands of the sheep, freed from fat. One part of the powder is equivalent to five parts of the fresh glands. No process of standardization is given. Average dose 0.250 Gm., or 4 grains.

Hexamethylenamina (Hexamethylenamine) is the official name of a condensation product of formaldehyde and ammonia. It has been extensively employed under the name of urotropin, uritone, cystogen, cystamine, aminoform, and ammonia formamide.

Kaolinum (Kaolin) is a native aluminum silicate. It is a yellowish-white powder, without odor, and is insoluble in water. It is used in the manufacture of Cataplasm of Kaolin and as a dusting powder. It also furnishes a convenient excipient for making pills of potassium permanganate.

Kaolin). This preparation is intended to take the place of a well known product, and is composed of kaolin, glycerin, boric acid, thymol, methyl salicylate, and oil of peppermint. It is used as a local application to reduce inflammation.

Liquor Antisepticus (Antiseptic Solution). Strictly speaking is a toilet article. It is made by dissolving boric acid, benzoic acid, thymol, eucalyptol, oil of peppermint, oil of gaultheria, oil of thyme, in alcohol and water.

Liquor Chlori Compositus (Compound Solution of Chlorine) is nothing more nor less than chlorine water made by a convenient process and under a new name. It is a good preparation; can be made quickly and cheaply from potassium chlorate, hydrochloric acid, and water, and should become more popular as a disinfectant in the sick-room than the old preparation of chlorine water or the proprietary articles containing chlorine and hypochlorites. The official solution contains about 0.4 per cent of chlorine.

Liquor Formaldehyde (Solution of Formaldehyde) is made official to take the place of the numerous liquid preparations containing formaldehyde gas. The official solution contains not less than 37 per cent of formaldehyde gas.

Liquor Sodii Phosphatis Compositus (Compound Solution of Sodium Phosphate) has little to recommend it. Each teaspoonful contains about 57 grains of the salt. The reputation of sodium phosphate as a hepatic stimulant was established from the use of the salt, and not from a solution like this, containing sodium phosphate, citric acid, and sodium nitrate. Ordinary sodium phosphate is inconvenient for administration on account of the large quantity of hot water required to dissolve it. This difficulty has been met in the new Pharmacopœia by making official *Sodii Phosphas Exsiccatus* (Exsiccated Sodium Phosphate), which is freely soluble in water, but is more than twice as strong as ordinary sodium phosphate. *Sodii Phosphas Effervescens* is open to the same objection as Compound Solution of Sodium Phosphate.

Methylthionina Hydrochloridum is the official name of chemically pure Methylene Blue.

Two new laxative pills have been

added: *Pilula Laxativa Composita* (Compound Laxative Pills) contain 1/5 grain of aloin, 1/128 grain of strychnine, 1/8 grain of extract of belladonna leaves, and 1/16 grain of ipecac. *Pilula Podophylli, Belladonnae et Capsici* (Pills of Podophyllum, Belladonna, and Capsicum) contain resin of podophyllum 1/4 grain, extract of belladonna leaves 1/8 grain, and capsicum 1/2 grain.

Pulvis Acetanilidi Compositus (Compound Acetanilide Powder) was introduced to supplant the various headache powders so extensively sold. This powder is made up of acetanilide 70 per cent, caffeine 10 per cent, and sodium bicarbonate 20 per cent. The sodium bicarbonate renders the acetanilide readily soluble in water. Average dose 0.5 Gm.—7½ grains.

Sabal, commonly known as Saw Palmetto, is the dried fruit of *Serenoa Serulata*. Preparations of the fruit are used as a stimulant to the genito-urinary tract. Average dose 1.0 Gm.—15 grains.

Safrolum (Safrol) is a methyl ether found in oil of sassafras, camphor oil, etc. It is a colorless, faintly yellow liquid with a sassafras-like odor. Its dose is 0.3 Cc.—5 minims. The symptoms of poisoning from this substance are similar to those of yellow phosphorus. It is used as a flavoring agent.

Scopola (Scopola), the dried rhizome of a plant, belongs to the Solanacea or Belladonna family. Its alkaloid Scopolamine is said to be chemically identical with hyoscine. Two new pharmacopœial preparations are made from the drug—the fluid extract and the extract, both of which are similar in their therapeutic qualities to belladonna, and are given in the same doses. The average dose of the fluid extract is 1 minim (0.06 Cc.), and of the extract 1/5 grain (0.010 Gm.).

Scopolamina Hydrobromidum (Scopolamine Hydrobromide), the hydrobromide of the alkaloid from Scopola, is said to be identical with hyoscine hydrobromide. It is said also to be similar to that alkaloid in therapeutic properties, and is administered in the same dose. At the present time it is of great interest on account of its use, when combined with morphine and given hypodermically, for producing narcosis, during which time, it is claimed, surgical operations may be performed without pain or consciousness.

on the part of the patient. The average dose is 1/128 grain—0.0005 Gm.

Serum Antidiphthericum (Antidiphtheric Serum—Diphtheria Antitoxin) is official, and its standard of strength is "expressed in units of antitoxic power, and should be that approved or established by the United States Public Health and Marine Hospital Service." The serum has thrown around it every protection it is possible for the government to give it, and arrangements have been perfected for having the products of the various manufacturers tested at the laboratories of the government at Washington. The average dose is stated as 3000 units for persons afflicted with diphtheria, and 500 units as an immunizing dose for well persons.

Sodii Arsenas Exsiccatus (Exsiccated Sodium Arsenate) is almost twice as strong in arsenic as (hydrous) sodium arsenate, which was formerly, and is still, official. On account of its tendency to effloresce in dry air, and deliquesce in moist atmosphere, the hydrous salt varies in its percentage of arsenic. Upon heating, the hydrous salt gives up its water of crystallization, which amounts to 40.4 per cent; consequently the dose of the exsiccated salt is only about half that of the hydrous salt. Average dose 1/20 grain—0.003 Gm.

Sodii Citras (Sodium Citrate) is introduced into the Pharmacopœia in order to furnish a sodium salt to those members of the medical profession who look upon the potassium base as a depressant. Its doses and uses are about the same as potassium citrates.

Strophanthinum (Strophanthin) is a crystalline glucoside, or mixture of glucosides, from *Strophanthus*. There is no reliable chemical assay for it, and to insure a therapeutically reliable preparation physicians should employ a product that has been physiologically tested. Average dose 1/200 grain—0.0003 Gm.

Sulphonethylmethanum (Sulphonethylmethane), commonly known as Trional, is the hypnotic, introduced into the pharmacopœia for the first time under this name. Average dose, 1.0 Gm.—15 grains.

Sulphonmethanum (Sulphonmethane), known as Sulfonal, is introduced for the first time under this name. Average dose, 1.0 Gm.—15 grains.

Thymolis Iodidum (Thymol Iodide) is introduced to take the place of Aristol, Annidalin, and Thymotol.

Unguentum Hydrargyri Dilutum (Blue Ointment). Is made by diluting 67 parts of mercurial ointment with 33 parts of petrolatum.

Vinum Cocæ (Wine of Coca) contains 65 Cc. of fluid extract of coca in 1000 parts of wine.

Zinci Phenolsulphonas (Zinc Phenol-sulphonate), commonly known as Zinc Sulphocarbolate, is introduced into the Pharmacopœia for the first time. Dose about 2 grains (0.12 Gm.).

CHANGES IN OFFICIAL NAMES.

Changes in official names of many preparations were made to conform to the general principles of using whenever practicable the true chemical names of a number of drugs which were official. The following extract from the "General Principles to be Followed in Revising the Pharmacopœia, as Adopted by the Pharmacopœial Convention of 1900," will explain the names given to many of the newly admitted chemicals:

"In the case of newly admitted articles it is recommended that such titles be chosen as are in harmony with general usage and convenient for prescribing; but in the case of chemicals of definite composition a scientific name should be given, at least as a synonym." The following are some of the most important changes in the official names:

- Acidum Arsenosum, to Arseni Trioxidum.
- Acidum Carbolicum, to Phenol.
- Acidum Chromicum, to Chromii Trioxidum.
- Aloes Barbadensis, Aloes Socotrina, to Aloe.
- Ammonii Valerianas, to Ammonii Valeras.
- All valerianates, to Valerates.
- Amyl Nitris, to Amylis Nitris.
- Apomorphinæ Hydrochloras, to Apomorphinæ Hydrochloridum.
- All Hydrochlorates of Alkaloids, to Hydrochlorides.
- Calx Chlorata, to Calx Chlorinata.
- Chloral, to Chloralum Hydratum.
- Cocainæ Hydrochloras, to Cocainæ Hydrochloridum.
- Colchici Radix, to Colchici Cormus.
- Extractum Fluidum, to Fluidextractum.
- Glyceritum Acidi Carbolici, to Glyceritum Phenolis.
- Guaiaci Resina, to Guaiacum.
- Hydrastinæ Hydrochloras, to Hydrastinæ Hydrochloridum.
- Hyoscine Hydrobromas, to Hyoscine Hydrobromidum.
- All Hydrobromates of Alkaloids, to Hydrobromides.
- Hyoscyaminæ Hydrobromas, to Hyoscyaminæ Hydrobromidum.

Liquor Potassæ, to Liquor Potassii Hydroxidi.
 Liquor Sodæ, to Liquor Sodii Hydroxidi.
 Liquor Sodæ Chloratæ, to Liquor Sodæ Chlorinatæ.
 Magnesia, to Magnesii Oxidum.
 Magnesia Ponderosa, to Magnesii Oxidum Ponderosum.
 Mangani Dioxidum, to Mangani Dioxidum Præcipitatum.
 Mel Despumatum, to Mel Depuratum.
 Methyl Salicylas, to Methylis Salicylas.
 Morphinæ Hydrochloras, to Morphinæ Hydrochloridum.
 Naphthalinum, to Naphthalenum.
 Naphtol, to Betanaphthol.
 Petrolatum Spissum, Petrolatum Molle, to Petrolatum.
 Pilocarpinæ Hydrochloras, to Pilocarpinæ Hydrochloridum.
 Potassa, to Potassii Hydroxidum.
 Quininæ Hydrobromas, to Quininæ Hydrobromidum.
 Quininæ Hydrochloras, to Quininæ Hydrochloridum.
 Resorcinum, to Resorcinol.
 Salol, to Phenylis Salicylas.
 Soda, to Sodii Hydroxidum.
 Sodii Hyposulphis, to Sodii Thiosulphas.
 Sodii Sulphocarbolas, to Sodii Phenolsulphonas.
 Spiritus Glonoini, to Spiritus Glycerylis Nitratiss.
 Stramonii Folia, to Stramonium.
 Tinctura Arnicæ Florum, to Tinctura Arnicæ.
 Tinctura Stramonii Seminis, to Tinctura Stramonii.
 Tinctura Veratri Viridis, to Tinctura Veratri.
 Unguentum Acidi Carbolici, to Unguentum Phenolis.
 Veratrum Viride, to Veratrum.
 Vinum Ferri Citratiss, to Vinum Ferri.
 Zinci Valerianas, to Zinci Valeras.

ASSAY PROCESSES.

Assay processes for over fifty important preparations for which no assay was required by the U. S. P. of 1890 have been introduced into the U. S. P. of 1900. This should be of great value in insuring uniformity, purity, strength, and action, but if we are to profit by the change we must insist upon being furnished with drugs and preparations which meet the requirements of the Pharmacopœia. Among the more important drugs for which assay processes are given for the first time are Aconite and its preparations; Coca and its preparations; Belladonna Leaves and their preparations; Belladonna Root and its preparations; Colchicum Corm and its preparations; Colchicum Seed and its preparations; Conium and its preparations; Guarana and its preparations; Hydrastis and its preparations; Ipecac and its preparations; Physostigma and its preparations; Pilocarpus and its preparations; Stramonium and its prepa-

arations; and a large number of volatile oils.

CHANGE IN STRENGTH OF PREPARATIONS.

The International Conference for Unification of the Formulas of Heroic Medicines, held at Brussels in 1902, recommended that certain preparations of heroic remedies be made of uniform strength in the Pharmacopœias of the different countries. The present revision of the U. S. P. has accepted nearly all of the recommendations adopted at this convention.

The following are changes in strengths of preparations, to which attention should especially be directed:

	OLD STRENGTH.	NEW STRENGTH.
Effervescent Citrate of Caffeine:	2 Gm. caffeine in 100 Gm.	4 Gm. caffeine in 100 Gm.
Ext. of Nux Vomica:	15 per cent total alkaloids.	5 per cent strychnine.
Fluid Extract Nux Vomica:	1.5 Gm. total alkaloids in 100 Cc.	1 Gm. strychnine in 100 Cc.
Tinct. Nux Vomica:	0.3 Gm. total alkaloids in 100 Cc.	0.1 Gm. total alkaloids in 100 Cc.
Powdered Opium:	13 to 15 per cent crys. morph.	12 to 12.5 per cent crys. morph.
Deodorized Opium:	(Same change as above.)	
Tinct. of Opium and Deodorized Tinct. of Opium:	1.3 to 1.5 Gm. crys. morph. in 100 Cc.	1.2 to 1.25 Gm. crys. morph. in 100 Cc.
Extract of Opium:	18 per cent crys. morph.	20 per cent crys. morph.
Solution of Iron and Ammonia Acetate:	2 Cc. tincture of ferric chloride in 100 Cc.	4 Cc. tincture of ferric chloride in 100 Cc.
Oleate of Mercury:	20 per cent yellow oxide mercury.	25 per cent yellow oxide mercury.
Effervescent Potassium Citrate:	48 per cent potassium citrate.	20 per cent potassium citrate.
Glycerin Suppositories:	(Now only half the size.)	3 Gm. glycerin.
Syrup of Ferrous Iodide:	10 per cent ferrous iodide by weight.	5 per cent ferrous iodide by weight.
Tincture of Aconite:	1 Gm. aconite in 285 Cc.	1 Gm. aconite in 10 Cc.
Tincture Belladonna leaves:	1 Gm. belladonna leaves in 6.67 Cc.	1 Gm. belladonna leaves in 10 Cc.
Tincture of Cannabis Indica:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Cantharides:	1 Gm. drug in 20 Cc.	1 Gm. drug in 10 Cc.
Tinct. Capsicum:	1 Gm. drug in 20 Cc.	1 Gm. drug in 10 Cc.
Tincture Colchicum seed:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tincture Digitalis:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Gambir Compositus:	1 Gm. drug in 10 Cc.	1 Gm. drug in 20 Cc.
Tinct. Gelsemium:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Hyoscyamus:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Sanguinaria:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Squill:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Stramonium:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Physostigma:	1 Gm. drug in 6.67 Cc.	1 Gm. drug in 10 Cc.
Tinct. Lobelia:	1 Gm. drug in 5 Cc.	1 Gm. drug in 10 Cc.
Tinct. Kino:	1 Gm. drug in 10 Cc.	1 Gm. drug in 20 Cc.
Tinct. Rhubarb:	1 Gm. drug in 10 Cc.	1 Gm. drug in 5 Cc.
Tinct. Serpentaria:	1 Gm. drug in 10 Cc.	1 Gm. drug in 5 Cc.
Tinct. Strophanthus:	1 Gm. drug in 20 Cc.	1 Gm. drug in 10 Cc.
Tinct. Veratrum:	1 Gm. drug in 2.5 Cc.	1 Gm. drug in 10 Cc.
Wine of Colchicum seed:	1 Gm. drug in 6.67 Cc.	1 Cc. fluid extract in 10 Cc.
Wine of Ergot:	1 Gm. drug in 6.67 Cc.	2 Cc. fluid extract in 10 Cc.

DOSES.

The Pharmacopœial Convention of 1900 instructed the Committee of Revision "to state the average approximate (but neither a maximum nor minimum) dose for adults, the metric system to be used and the approximate equivalent in ordinary weights or measures inserted in parentheses," and the Committee was further directed to make the following distinct declaration: "That neither this Convention, nor the Committee of Revision created by it, intends to have these doses regarded as obligatory on the physician or as forbidding him to exceed them whenever in his judgment this seems advisable." In all instances where the chemical, drug, or preparation is intended for internal use the average dose is stated.

EXTRA-GENITAL CHANCRE—INFECTION FROM A BARBER.

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Extra-genital chancre is in itself not uncommon, but very few cases of infection from a barber shop have so far been reported. Bulkley (*Journal of the American Medical Association*, March 4, 1905, p. 681), in a very admirable article on syphilis in the innocent, records that he has individually treated 200 cases of extra-genital chancre, and from the literature has collected 9058 other cases. Of these 1863 were the result of vaccination, 745 cupping and phlebotomy, 179 circumcision, and 82 tattooing. He also notes that 1810 cases were on the lips, 1148 on the breast, 734 in the buccal cavity, 432 on the fingers and hands, 372 in the region of the eye, and 307 on the tonsils. Belfield (*Medical Record*, New York, Dec. 17, 1904, p. 976) notes two cases of extra-genital chancre due to a barber that came under his personal observation. One case followed a cut on which the barber used a styptic pencil, and the other followed the removal of a hair with a pair of forceps. With a view to further investigating this question Belfield communicated with about twenty-

five syphilographers, and from them received the answer that they had seen the following cases: Fuller 2 cases, Baum 2 cases, Horwitz 1 case, Fanoni 1 case, Keber 1 case, Post 1 case, Gilchrist 1 case, Schmidt 1 case, Morrow 6 cases, Bulkley over 12 cases, and White 8 to 12 cases. Robbins (*Maryland Medical Journal*, Jan. 29, 1898) reports a case in which the initial lesion was on the chin just below the border of the lip, and resulted from a razor cut. He collected from the literature 7 cases: 1, chancre of the scalp at the site of a wound with the clipper; 2, chancre of the brow, infection from a papular syphilide on a barber's hand; 3, 4, and 5, chancres the result of razor cuts; 6 and 7, chancres of the lip as a result of the use of the rouge stick. In view of this fact it would seem of interest to report the following case:

A. B. C., by occupation a salesman, aged twenty-eight years, consulted me for what he believed to be an infected boil, as he described it, on the left side of the chin. On further questioning I obtained a history that he had had a small pimple on the right side of the chin, which had been cut on June 23 while being shaved; that this small wound had healed up, and then broken down on or about the 3d of July, at which time he consulted a homeopath, who treated it for two weeks and told him that he had a boil. He consulted me on July 18, and I found he had an absolutely typical chancre with marked glandular enlargement and papular syphilides on the chest, abdomen, forehead, and back.

Although extra-genital chancre due to infection from a barber is not common, still it is sufficiently so to demand that the State take cognizance of its existence, and by suitable legislation prevent any barber who is infected with syphilis from practicing his trade.

Moreover, it is of extreme importance that the barbering implements, particularly those likely to come in contact with raw surfaces, should be sterilized before or after each using. In a number of the States this practice is enforced by law. Unfortunately, in Pennsylvania no attention has been drawn to the need of such legislation. Perhaps the most dangerous tool in the barber's armamentarium in so far as the transmission of syphilis is concerned is the alum stick,

employed for the checking of such slight hemorrhage as may occur during the process of shaving. As commonly employed this implies that the dried and crusted blood of a previous client is rubbed into the fresh wound of a person injured, and moreover that the inoculation thus made is protected by a scum of coagulated blood, thus forming conditions peculiarly favorable for inoculation. When it is remembered that the blood of the syphilitic is highly contagious long after all skin manifestations of the disease have disappeared, the danger of transmission by this means can be readily appreciated.

As to the therapeutics of syphilis originating from an extra-genital infection, it differs in no wise from that applicable to the disease acquired in the ordinary way, except from the fact that since the lesion is conspicuously placed and its discharges are likely to contaminate articles commonly used, such as soap, towels, etc., it should be cured by internal treatment without waiting for the appearance of secondary manifestations. Its resolution is most quickly accomplished by an immediate mercurial treatment locally, preferably by inunctions, supplemented by vapor baths, aided by hypodermic injection, and by a dusting powder of calomel locally.

THE PASSING OF BROMISM IN EPILEPSY.

It is a fact, supported by competent testimony, that the bromides, after more than half a century's use, have not raised the percentage of cures in epilepsy by a single point. If we credit the figures of some of the older writers on epilepsy—writers of the prebromide days like Herpin and Reynolds—we must not only regard the bromides as powerless to cure epilepsy, but we must at the same time look upon them as capable of doing as much harm as they do good, as they are ordinarily administered. This is the author's own opinion of the matter: an opinion tardily formed after an experience in several thousand cases, extending over fifteen years.

Many epileptics respond well for indefinite periods of time to the suppressive effects of the bromides, but suppression

is not cure. At the same time they have a limited value in that the attacks are held temporarily in abeyance, while other forms of treatment that aim at the removal of the cause are being applied. Roughly speaking, not more than from fifty to sixty per cent of the patients with epilepsy that come to us for treatment should be given the bromides in any form. The dose of the drugs, too, as generally administered, is far too large. It is seldom necessary to give more than twelve or fifteen, or at the utmost twenty, grains three times a day as a routine treatment to be kept up for any length of time. Emergency doses, to check serial attacks or to relieve the status epilepticus, may be much larger.

Several factors count for the disappearance in so large a measure of bromism in epilepsy to-day. Among them may be mentioned: (a) The recognition during the past few years of the necessity for the treatment of the individual *in toto*, in contradistinction to the treatment of a single symptom. (b) The use of depressants that possess the virtues of the bromides, but not their faults, the chief agent of this kind being pure bromide in oil of sesamum, given in the form of an emulsion. (c) The use of Toulouse's method of a diet poor in salt to augment the value of relatively small doses of a bromide. Ten grains of bromide under this method is as effective ordinarily as twenty grains when no check is put upon the amount of chloride of sodium that is consumed in the food.

For some four or five years after the opening of the Craig Colony it was a daily occurrence to admit patients suffering from violent evidences of bromide poisoning due to the long-continued use of the drug in forty- to sixty-grain doses three times a day. In some of these cases there was pronounced bromide dementia—a condition that usually soon cleared up after the withdrawal of the drug. Such cases are now of great rarity, although the admissions are more frequent than ever. The more completely we can get away from the idea that epilepsy is simply a convulsion and nothing more, a disease with one fixed symptom to be cured by one drug, the more gratifying will be the rate of recoveries.—*New York Medical Journal*, Aug. 19, 1905.

The Therapeutic Gazette

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Leading Articles.

THE IMPORTANCE OF STUDYING THE CONDITION OF THE BLOOD-VES- SELS IN CARDIAC DISORDERS.

The medical profession, as a body, has failed to grasp as completely as it should the relative importance of vascular changes in connection with cardiac disease, and physicians are perhaps too prone to examine the pulse with the purpose of discovering the condition of the heart, paying too little attention to the state of the vessel wall both as to its tension and its degree of fibrosis. As we have repeatedly pointed out in these columns, it is as essential for the maintenance of life that the arterial system shall perform its functions properly as it is that the heart shall beat in a physiological manner. Indeed, it is possible for health and comfort to be maintained when the heart is quite irregular in its action, provided that the vascular system is in a physiological state. Pathological states of the vascular system not only directly interfere with the nutrition of the tissues and with the normal circulation of the

blood, but by the coincident changes which occur in the coronary arteries there is also interference with the strength and activity of the heart muscle. It not infrequently happens in the treatment of the acute infectious diseases that a condition of arterial relaxation develops, without there being any true cardiac disorder, the irregularity or abnormality of the heart's action depending upon the fact that the normal *vis a fronte* no longer exists. When the vessels are relaxed, the heart beats too fast because resistance is diminished, the interchange between the blood and surrounding tissues is perverted, and the heart becomes tired in its endeavor to fill blood paths which will continually receive more blood than it can provide. More rarely in the acute infectious diseases, but much more commonly in chronic cases in which sclerotic or fibroid changes are taking place in the vessels, the heart which is tired does not need stimulation but relief from its burden, a relief which can only be obtained by dilating the blood paths, and so diminishing the *vis a fronte* which has become excessive. It is for this reason that physicians are coming to recognize more and more that digitalis must often be combined with nitroglycerin if its best cardiac effect is to be obtained.

In connection with these cases of high arterial tension with secondary cardiac feebleness, it is interesting to note that the work of the heart may be increased by two different conditions. In some instances, in association with a moderate amount of fibroid change in the blood-vessels, there is a very distinct tendency to spasm of their walls. In other cases the spasm is absent, but the fibroid thickening is so marked that the arterial channels are materially narrowed, and the work of the heart greatly increased. In those cases which depend upon spasm we can always produce at least a certain degree of relief by the administration of the nitrites, whereas in those instances in which the increased *vis a fronte* depends upon fibroid change alone, it is manifest that vascular relaxants can do but little good, since an organic change has taken place which cannot be put aside by drugs which cause dilatation of the blood-vessels under ordinary circumstances. Physicians of experience can doubtless recall many cases which illus-

trate these two types of high arterial tension, and in addition to the information which they have gained by palpating the arteries, they have found, as the result of a therapeutic test, that nitroglycerin has done good in one case and failed to do good in another. In the latter class of cases, namely, those which depend upon fibroid change, the iodides are, as a rule, to be much preferred to the nitrites. While these alterative remedies cannot remove fibroid tissue which is already well developed, they seem to do good in the way of decreasing its growth, and even relieving some of the symptoms which have developed.

A very interesting contribution to this subject has been made recently to the July issue of the *Intercolonial Medical Journal of Australasia* by Stawell, of Melbourne, and we regret that the limited circulation of this publication in the United States will bring his article before comparatively few American readers. While we cannot agree with some of the points which he thinks are of importance, we are glad to find that he emphasizes the different conditions of the arterial system which we have spoken of. He also states that many cases of valvular disease of the heart, with or without heart failure, manifest a very distinct condition of high arterial tension, and he brings forward a fact which has been chiefly emphasized by Broadbent, namely, that mitral stenosis, which is a disease usually associated in our minds with the state of low arterial tension, is not rarely characterized by high pressure. Whether this increase in arterial tension is due to stimulation of the vasomotor center by some toxic material in the circulation, or simply due to increase in CO_2 , is not known, but he has found that the administration of oxygen will often very materially lower arterial tension under these circumstances, and thereby rest the tired heart. He also emphasizes a point to which we have referred in previous editorials, namely, the importance of equalizing the distribution of the circulation, and he calls attention to the fact, which, at first glance, is paradoxical, viz., that the treatment of a failing heart, in cases of valvular disease, whereby its strength is restored not infrequently lowers rather than raises arterial tension. He is of the opinion that digitalis is of little value

where the myocardium is seriously affected. We cannot agree with him that the use of hypodermoclysis and intravenous injections of saline solutions materially increase the work of the heart, because, as is well known to physiologists, it is practically impossible to raise blood-pressure by the mere mechanical presence of an increased quantity of fluid in the blood-vessels.

Dr. Stawell's paper is based upon a large number of clinical observations made with the aid of the sphygmomanometer, and is accompanied by a series of charts which illustrate his excellent views. It is also followed by one on the use of strychnine in conditions of altered arterial blood-pressure by Sewell, which was contributed to the Melbourne Medical Students' Society, and which is an interesting adjunct to Stawell's paper.

DELAYED AFTER-EFFECTS OF ANESTHETICS.

Every practitioner of medicine is aware of the fact that the evil after-effects of anesthetics, used for surgical purposes, are capable of seriously interfering with the recovery of his patient. Again and again in these columns we have pointed out the fact that although familiarity breeds contempt, the production of anesthesia is by no means a process to be entered into other than reverently, discreetly, and in the fear of God, for without doubt its development is possessed of some danger. Although the immediate dangers of anesthetics are recognized to some extent even by those who are most careless in the use of these drugs, the fact is not as generally recognized as it should be that the use of ether and chloroform is sometimes followed, a number of hours after the operation, by grave symptoms and sometimes by death; this result being largely if not entirely attributable to the drug. For many years surgeons who have been fond of the employment of chloroform have urged upon their doubting brethren that although chloroform was more prone to produce dangerous symptoms during its inhalation than ether, it in reality did not have as high a mortality as does the latter drug, since ether frequently produces pulmonary or renal complications several

hours after it has been given. They believe these complications jeopardize the patient's life more than those due to chloroform.

It is well to note that within the last few months a renewed interest has been taken by the profession in this question of postanesthetic accident or illness, and it is also an interesting fact that clinical experience and experimental research have shown that the use of chloroform may be followed by postanesthetic conditions which are exceedingly grave and most difficult to treat. Thus, we find in the *Edinburgh Medical Journal* for September, 1905, a contribution by Mr. Luke, the Lecturer on Anesthetics at Edinburgh University, in which he discusses postanesthetic sickness. He believes that this sickness depends to some extent upon the nature of the anesthetic employed, the nature of the operation, with special regard to its duration, the degree of skill with which the anesthetic is given, the thoroughness with which the patient is prepared, the patient's condition at the time of the operation, and lastly, the patient's age, sex, and temperament. Our readers will probably recall the results obtained by the Anesthetic Committee of the British Medical Association in 1901, which analyzed nearly 22,000 cases of anesthesia. Of these 11.6 per cent suffered from vomiting after chloroform; 24.7 from this symptom after ether; 15 per cent when nitrous oxide and ether were used; 18 per cent when the A. C. E. mixture was employed; and 11 per cent when the chloroform and ether mixture was used. These statistics corresponded fairly closely with others collected by individual observers at various times, and Luke sums up the subject by stating that about 15 per cent suffer from sickness after chloroform, 25 after ether and chloroform, and 40 after ether alone. As Luke points out, however, these statistics are open to the same objection as many other statistics, namely, that they include many cases in which the sickness was so mild that the patient may not have retched more than once, and therefore they do not possess the value that they might have if the records had been kept more accurately.

As to the method of treating postanesthetic nausea Luke believes that the deprivation of fluids, so rigidly enforced by

some surgeons, is unnecessary and harmful. He thinks that most drugs have little influence in combating this condition. In his opinion a mustard sinapism applied over the epigastrium is often advisable.

A very much more important contribution to the subject of postanesthetic accident or untoward effect is that which has been contributed by Bevan and Favill, of Chicago, to the *Journal of the American Medical Association* of September 2, 1905. These investigators were so unfortunate as to have the case of a girl of twelve years, unusually well developed, who suffered from a series of symptoms, at first thought to be due to appendicitis, but which really depended upon a gangrenous condition of the ovarian cyst and the Fallopian tube on the left side. It required a considerable quantity of chloroform to anesthetize this patient, and although she passed through the anesthesia and operation successfully, forty-eight hours later she vomited, and soon began to talk incoherently and to suffer from delirium. The delirium was so violent that it was practically uncontrollable, and after a careful study of the case and exclusion of all ordinary causes of these symptoms, the medical attendants concluded that the case was one of auto-toxemia, from which condition the patient died three days later. The case caused Bevan and Favill to undertake a careful investigation of the literature of the subject, and they have been able to find quite a number of instances in which somewhat similar symptoms have followed the administration of chloroform. For the details of these cases we must refer our readers to their original article. Suffice it to state that as a result of their research they find that anesthetics, especially chloroform, can produce a destructive effect upon the cells of the liver and kidneys, and on the muscle cells of the heart and other muscles, resulting in fatty degeneration and necrosis, very similar to the effects produced in phosphorus poisoning, and that these changes are most marked in the liver. Further, that they are in direct proportion to the amount of the anesthetic employed and the length of the anesthesia; and again, that certain individuals exhibit an idiosyncrasy or susceptibility to this form of poisoning. Of the predisposing causes they find that the young are more sus-

ceptible than the old; that conditions of lowered vitality, such as diabetes, infections and intoxications, predispose to it, and indeed any condition which tends to produce exhaustion, as do also sclerotic changes in the liver and kidneys. As a result of this fatty degeneration of the nervous and liver cells, toxins are produced which are ordinarily eliminated, but which in certain cases are retained, and these toxins produce a definite chain of symptoms which appear in from 10 to 150 hours after the anesthesia, and consist in vomiting, retching, delirium, convulsions, coma, Cheyne-Stokes respiration, cyanosis, jaundice, and usually death. A certain number of mild cases are met with in which a transient jaundice occurs, and in which recovery takes place. Bevan and Favill consider that these hepatic changes are as definite as those found in acute pancreatitis, and that, as by-products in this toxemia, but not as the essential poisons, are found acetone, diacetic acid, and beta-oxybutyric acid in the blood and urine. They assert that the damage to the liver is so great as to cause a total destruction of this organ, and in their concluding remarks they state that this serious and evil late effect of chloroform, which has heretofore not been generally recognized, must still further limit the use of this powerful and dangerous agent. They believe that diabetes, sepsis, starvation, hemorrhage, and fatty degenerations contraindicate the use of chloroform, considering that the possibility of this condition arising also militates against the employment of chloroform in prolonged operations. In other words, they consider that a two-hour chloroform anesthesia in man is exceedingly dangerous.

We consider that this research of Bevan and Favill is of very great importance and requires careful study on the part of the profession. While their investigations are, to a large extent, in a new field, there can be no doubt that acetonuria, so-called, is capable of producing many of the symptoms recorded in the cases which they cite, and the so-called "cyclic vomiting" of children, who have not taken an anesthetic, is probably due to this cause. Edsall has recently published an interesting study along these lines in this country, and Muraille has done so in France.

In conclusion it may be interesting to cite the results obtained by Pringle, Maunsell, and Seton Pringle, which are published in the *British Medical Journal* of September 9, 1905, concerning the effects of ether anesthesia upon renal activity. They find that ether distinctly diminishes the urinary flow, and decreases the elimination of solids, even more than it decreases the elimination of liquids. They believe that prolonged etherization must exercise an injurious effect in those cases in which these organs are already so impaired in their function that they have difficulty in maintaining their normal degree of elimination.

THE VALUE OF SUBCUTANEOUS NUTRIENT INJECTIONS.

In those cases in which physicians have found it desirable to nourish patients by other means than the stomach it has been customary to employ nutrient enemata, but as we have several times pointed out in these columns, there is good reason for believing that nutrient enemata are absorbed in very small quantity, and it is exceedingly doubtful whether the patient gains much from the injection, except in so far as he may be benefited by the absorption of fluid and the relief of thirst. It is interesting to note that a number of physicians have in the past attempted to administer nourishment by subcutaneous injections. Animal extracts do not lend themselves to this plan, since they always contain peptones, and peptones, when given hypodermically, are capable of producing serious local and general symptoms, such as severe inflammation, high fever, or irritation of the excretory organs. Other physicians have attempted to provide the body with sustenance by the injection of nutrient oils, hoping that a sufficient quantity of the oil would be absorbed and utilized in the body to give the patient a certain number of calories. Recent investigations, however, indicate that this method is not capable of being employed with any certainty of good results.

In the *American Journal of Physiology* of September 1, 1905, Henderson and Crofutt, as a result of an interesting original investigation upon animals, conclude that when oil is injected subcu-

taneously it is readily and widely distributed throughout the subcutaneous spaces, but that it is not transformed *in situ* into adipose tissues, but, on the contrary, is prone to produce considerable local reaction. After such an injection the oil does not appear in the blood, in the lymph, or in the milk of the animals which receive it. They believe that the oil is ultimately absorbed and utilized in metabolism, but the process is so exceedingly slow that it is of little immediate benefit to the patient, and they conclude that oil injections in any moderate amount are therefore without nutritive value.

THE TREATMENT OF CARDIAC FAILURE
IN TYPHOID FEVER.

A subscriber to the THERAPEUTIC GAZETTE writes that he is frequently confronted with cases of typhoid fever of a malignant type in which the heart seems to have lost its equilibrium, and is weak and rapid in its action. This condition may occur early or about the end of the second week, or still more frequently even later on in the disease. The question is asked, "How shall I quiet and give proper balance to that heart?" and the statement is made that quite a diversity of opinion exists as to how this question should be answered. There are some who advocate the administration of digitalis, and there are others who feel convinced that this drug is of practically no value as a heart stimulant in typhoid fever. We think that those who have a poor opinion of digitalis in the treatment of cardiac failure in typhoid fever have good ground for their belief, although we do not believe that it is proper to take the attitude that the drug is contraindicated, for certain cases are undoubtedly benefited by its use. In those cases in which the heart is feeble without much myocardial degeneration, and in which the fever is not high enough to prevent the digitalis from acting, there is no reason why it should not be employed; whereas there are other cases in which myocardial degeneration is evident, or in which the fever is high, and in which digitalis cannot be expected to exercise any beneficial effects.

As a matter of fact, in a large proportion of cases of typhoid fever the development of cardiac feebleness in the

later stages of the disease can be prevented if the physician has the opportunity, and is wise enough, to resort to cold bathing in the early stages of the malady. Cold bathing, as is well known, does not exercise its chief benefit by a mere reduction of temperature, but produces its good results by aiding in the free elimination of toxins, and so protects all the tissues of the body from the degenerative changes which the toxemia produces. By cold bathing, as the readers of the GAZETTE are probably aware, we do not mean necessarily the immersion of the patient in a bath-tub of cold water, for as we have repeatedly pointed out, cold sponging or ice-rubbing, if it is accompanied by active friction, will produce equally good results in the majority of cases. So constant is this valuable adjuvant to treatment in diminishing cardiac complications that we rarely meet with them when it has been instituted early. On the other hand, physicians, particularly those in country practice, continually meet with patients who have been ill for a number of days, or even for one or two weeks, with typhoid fever before they come under treatment, and in these cases toxemia is profound, and its evil effects have already been exercised upon the heart and other viscera.

The question then arises as to how the circulatory condition of these patients is to be treated. In the majority of these cases digitalis is of little value, and the heart must be supported for a few days at least by more diffusible stimulants, such as aromatic spirits of ammonia, Hoffmann's anodyne, and alcohol, with occasional doses of strychnine. During the time that these are being given we firmly believe that a modified cold bath should be employed. Tepid sponging may be used, with active friction, or if the condition is one of very profound depression good results may actually follow rapid sponging with very hot water, which, paradoxical as it may seem, will not infrequently lower temperature and will certainly aid in diminishing toxemia, cold being applied to the head while the sponge, after being dipped in hot water, is swept rapidly over the surface. By the use of hot water reaction is produced; the paralyzed capillaries gradually have their elasticity restored, and by this means localized conditions of congestion and

ischemia are relieved. In some instances, too, the application of an ice-pack over the heart will do much toward quieting its excessive and rapid yet feeble movement, and the use of turpentine stupes over the belly and copious irrigation of the large bowel with milk of asafetida may, by relieving tympanites and intestinal fermentation, give considerable relief to the laboring heart. After the circulatory condition has been improved by the measures which we have indicated, digitalis sometimes will act efficiently, particularly if an ice-bag is applied over the precordium. If not, large or small quantities of good whiskey, or brandy, are usually better than continued doses of ammonia or Hoffmann's anodyne, which drugs had better be reserved for circulatory accidents. Strychnine also belongs to that class of remedies which are to be held in reserve for emergencies. As we have repeatedly stated, we consider it a mistake to employ strychnine day after day for long periods as a circulatory stimulant, as it is prone to produce an irritable temperature and general nervous irritability, and it is not a direct circulatory stimulant. In those cases in which the circulatory condition is profoundly feeble, the hypodermic injection of a grain of camphor in sterilized olive oil, once or twice a day, for a day or two is often of service.

OVARIAN TRANSPLANTATION.

It unfortunately happened that knowledge of the importance of the internal secretion of the ovary, or rather of the existence of such a secretion, was antedated by an extraordinary activity upon the part of the gynecologist leading to the adoption of ovariectomy as a means likely to accomplish the cure of the majority of ills to which women are peculiarly subject. It follows that there are thousands of women now suffering from what has been euphoniously termed *cachexia ovari priva*, characterized in the main by protean, ever-recurring, and universal functional disturbances of the nervous system. A knowledge subsequently gained as to the unfortunate nervous condition from which women subject to complete ovariectomy suffer has led to the general abandonment of the

complete operation, substituting for this partial operations in which a portion of the ovarian tissue is left. As a result of this modification the profound nervous changes so commonly following the work of the gynecologist are now comparatively rare. With the idea, however, of preventing the subsequent failure in health where local conditions are such as to require complete removal of both ovaries, or of curing the functional disturbances which have developed in consequence of such removal, there have been numerous attempts made of transplanting either the complete organs or fragments of healthy ovarian tissue, and according to reports, with apparent complete success.

It is popularly believed that it is quite possible to introduce into the peritoneal cavity or subperitoneally a healthy human ovary, and treat this organ so as to maintain its vitality, function, and nutrition. There is no reason for this belief other than a misplaced confidence in the powers of nature, nor that fragments of transplanted ovary will long continue to maintain their anatomical structure and function, though that this may be the case for a certain length of time seems to be demonstrated both by experiments on lower animals and on the human.

The whole subject is one of sufficient importance to make every experiment of interest, and this is particularly true in the case reported by Warbasse, in which all the characteristic symptoms of the *cachexia ovari priva* were well manifested. Ovarian extract made of the inspissated and pulverized ovary, given in 5-grain doses three times daily for two weeks during each month, kept this patient fairly comfortable, but when the drug was omitted the symptoms recurred. The ovaries of cows and sheep were used.

In conjunction with Fowler a cystic ovary was removed from a second patient; the cyst was cut away from the organ, leaving a full-sized, apparently normal ovary, covered on one side by the peritoneum and on the other by the lining of the cyst. This was buttonholed into a slit in the broad ligament of the first patient, leaving the peritoneal side exposed. It was secured in place by fine catgut sutures placed at either end of the wound, catching the ovary to prevent rotation and displacement, and the abdo-

men was closed. Following this operation the nervous disturbances and signs of cachexia failed to appear for nearly a year, but later on there was a recurrence of hot flashes, which, however, were not as distressing as before operation, though the patient thought that her condition was growing worse.

The clinical record of this case is in accordance with results of experimental investigation tending to prove that the transplanted ovary undergoes a slow process of degeneration and absorption. It is, however, sufficiently encouraging to lead to renewed experiment in this line.

SUTURE OF THE SPINAL CORD.

The unique case of suture of the spinal cord after complete section by a bullet reported by Harte and Stewart, and apparently followed by regeneration and recovery, has stimulated a repetition of laboratory experiments, which, however, fail to demonstrate that such regeneration can be expected. Actual clinical experience in this class of cases has been limited, primarily by the fact that instances in which suture is applicable rarely present themselves; secondarily, because there is a commonly accepted belief that even if the operation be mechanically possible restoration of function cannot be expected. It will be remembered in Harte's case that though the cord was so crushed that there was considerable separation of the ends, these were readily approximated by suture. By those interested in the experimental side of this question it has been found that the approximation of the ends of the cord by suture where there has been any considerable loss of substance is extremely difficult, the threads readily tearing out through the soft substance. Moreover, even after division of the cord by a clean knife-cut there is an entire absence of such restoration of function as would suggest regenerative processes.

Further evidence as to the unfavorable prognosis of cord sections is afforded by Fowler's report of the case of a man shot in the back by a 38-caliber revolver at a distance of about 30 feet. There was immediate paralysis of both sensation and motion in the lower half of the body, the anesthesia extending over the abdomen

as high as one inch above the crests of the ilia. The bowels and bladder were uncontrolled, and there was considerable twitching in the muscles of both legs, especially the toes. Ten days after the injury Fowler operated, removing the lamina of the tenth, eleventh, and twelfth dorsal vertebræ. The bullet was found lying transversely between the severed ends of the cord, concealed from view by a large blood-clot. A very narrow and contused strip of dura, scarcely wider than 1/16 of an inch, remained intact. The bullet was removed, and the ends of the cord were approximated by three fine chromicized catgut sutures, the dura being included in the sutures. Fowler states that no special difficulty was experienced in drawing together the ends of the cord and closing the defect, the latter representing in breadth the diameter of a 38-caliber bullet. The dura was further secured with a number of sutures of fine catgut, and the wound was drained. Three weeks later the upper line of anesthesia had receded 1½ to 3 inches, and the patient could feel the bowels move, but had no control. Twenty-six months later motion and sensation were practically lost in the affected area; nor was there control of the bladder and rectum. Marked rigidity and spasticity of both legs were present.

It should be remembered that Harte's case was operated on within three hours of the injury, and Fowler's not for ten days. Although the result of this last reported case together with the conclusions drawn from laboratory experiments would seem to indicate the impossibility of functional recovery following section of the cord, clinical experience is of infinitely more value than theoretical deductions, and we must accept the fact that Harte has proven his case, and that immediate suture of the cord is indicated when this proceeding is feasible.

Reports on Therapeutic Progress

THE TREATMENT OF DIARRHEA IN CHILDREN.

KERLEY states in the *Medical Record* of July 22, 1905, that he has learned that there are just four drugs which may be relied upon to serve us in diarrhea. These are calomel, castor oil, bismuth, and

opium. Castor oil is given at the onset by preference, the calomel being used only when oil is not retained. In such instances it is given in from one-tenth to one-twentieth grain doses at half-hour or one-hour intervals until one grain has been given. Bismuth subnitrate in not less than ten-grain doses at two-hour intervals has given most satisfactory results. In order to be of service it must produce black stools—in other words, if some of it is not converted into sulphide of bismuth in the intestine it is without avail. If it passes through the bowel unchanged, no influence whatever will be exerted upon the intestinal contents. This happens in a small percentage of cases. In such the sulphur is supplied by the use of precipitated sulphur, a one-grain powder being given with each dose of the bismuth. The bismuth is continued in the large doses until the child is ready for milk, and then the dosage is diminished one-half and continued until full milk feeding is followed, or until constipation necessitates its discontinuance. Opium in diarrhea must be used with caution. The author employs it when there is a tenesmus with frequent, large, watery stools. Opium should never be given when there are four or five medium-sized discharges in the twenty-four hours. This number is required to maintain drainage. It should never be given in combination with other drugs, for when the stools are reduced to one in four or five hours it should be lessened or discontinued. If it is used injudiciously, in too large doses or continued too long, the cessation of the stools will often be followed by a rise in temperature, prostration, and other evidences of systemic poison due to the retention of the intestinal contents which should be removed. If opium is to be given, the author prefers Dover's powder, one-quarter to one-half grain, every two or three hours, for a child one year of age.

As in the case of all good measures, irrigation of the colon has been overdone. Because a baby has diarrhea it does not follow that the colon must be washed out. The child who is having from ten to twenty loose watery discharges in twenty-four hours is quite effectually washed out, and does not require more. The cases which are benefited by the washing are those who have a moderate number of

green, loose, mucous stools, with or without blood. In short, the cases to be washed out are those which have something to be removed. The author never washes the colon oftener than once in twelve hours—usually once in twenty-four suffices. Various solutions have been used for the irrigation. One is as good as the other if you have enough water; for it is the cleansing of the bowel that benefits the patient. The author generally employs the normal salt solution, using it warm unless it is desirable to exert an influence upon the temperature. He has used it as cold as 60° F.; in cases of very high temperature, 105° or 106° F.; while if the patient is very weak, with subnormal temperature and marked prostration, he has used the solution at a temperature as high as 110° F. The irrigation is carried out as follows: A soft-rubber catheter, No. 14 English, is attached to a fountain syringe, the bag of which should be held three or four feet above the patient's body. The child must lie on the back or left side, with legs well drawn up. The tip of the well-oiled catheter is passed into the rectum. When an introduction of two inches has been effected, allow the water to pass in slowly. The water will distend the parts and facilitate the further introduction of the tube. Press the folds of the buttocks together until the colon is filled. This in a child eighteen months of age will require twenty-four to thirty ounces of water. When this, or a lesser amount, at least one pint, has passed in, allow the solution to run in and out at the same time.

TREATMENT OF SEROUS EFFUSIONS BY INJECTION OF ADRENALIN CHLORIDE.

PLANT and STEELE in the *British Medical Journal* of July 15, 1905, tell us that this method of treating serous effusions was first advocated by Barr, of Liverpool, in 1903.

In the first case, one of malignant disease of the pleura with hemorrhagic effusion, he used adrenalin injections empirically, and found the treatment entirely successful as regards the effusion. He then tried it on other cases, both pleural and peritoneal, with almost invariable success, even in a case of pericarditis with effusion. In his pamphlet he states that

the results obtained in cases of ascites from hepatic cirrhosis were not quite so good as in those resulting from tuberculous peritonitis and malignant growth. The only cases of ascites, with one exception, in which Plant and Steele have tried adrenalin have been those due to cirrhosis of the liver, and without exception the treatment has proved successful. In only one case have the authors had to inject the adrenalin more than twice, and in the majority of their cases one injection has proved sufficient.

In all cases in which they have tried the effects of the injection of adrenalin the method has been by a two-way trocar and cannula, and through the cannula, still *in situ*, 1 drachm of adrenalin chloride (1 in 1000), diluted to $\frac{1}{2}$ ounce with sterile water, was introduced by means of an exploring syringe. The cannula was then removed, the wound closed with wool and collodion, and, in abdominal cases, the abdomen was gently manipulated for five minutes and a binder firmly applied.

Immediately after the injection in ascitic cases the patients often complained of sharp abdominal pain. In all cases there was a rise of from $\frac{1}{2}^{\circ}$ to 2° of temperature, occurring usually within half an hour after the injection; also an immediate rise in the pulse tension was noticed, lasting from a quarter to half an hour.

In no case was the amount of urine altered.

The reason why the adrenalin should have the effect of stopping the serous exudate seems rather doubtful. In a case of carcinoma of the liver, in which adrenalin was used to check the effusion, from which the patient died some five weeks after the injection had been made, numerous recent adhesions between the visceral and parietal peritoneum were found post mortem, as well as a flaky deposit of lymph all over the peritoneal surface.

These adhesions were very exceptionally vascular, a regular network of fair-sized vessels radiating out on both sides of the adhesions. Judging from this it seems reasonable to suppose that the adrenalin, by inducing adhesions between the parietal and visceral layers of the peritoneum, and these adhesions becoming vascular, and thus setting up a very fair collateral circulation, should have

much the same effect as the transplantation of a piece of omentum under the abdominal muscles by relieving the congestion and so diminishing the exudation.

The authors have found that the addition of a few minims of the adrenalin solution to a test-tube of the fluid exudate has the effect of immediately throwing down irregularly-shaped flakes of lymph. This fact may possibly have some bearing on the checking of pleural effusions.

Take, for example, a case of pleurisy with effusion: after tapping the separated pleural surfaces come into fairly close apposition, merely being separated by a thin layer of fluid which has not been drawn off. Supposing, then, that no further exudate was to take place, in course of time the fluid would coagulate and glue the pleural surfaces together. On the other hand, suppose more exudation was to occur, if there had not been time for adhesions to form, the surfaces would again be separated, and the patient be in the same condition as before.

Now suppose that, after tapping, adrenalin had been injected into the pleural cavity; the thin layer of fluid would very quickly coagulate, and adhesions form before more exudation had time to take place, thus obliterating the pleural cavity in whole or in part, so that further fluid could not accumulate. This could hardly take place in the peritoneal cavity on account of its extreme complexity, but it does not seem outside the limits of possibility in the chest.

In any case, however, the drug acts, and the injection of adrenalin chloride seems strongly indicated, in all cases of serous effusion when simple tapping does not effect a cure.

ON GOUT AND ITS TREATMENT.

The *Clinical Journal* of July 26, 1905, contains an article by GORE. He tells us in its course that diet must be carefully regulated, and that in regulating the diet one very important fact should always be remembered, for it is one which is frequently neglected, especially when a patient consults a doctor for the first time: never change suddenly the diet to which the patient is accustomed. The composition of various digestive secre-

tions is regulated to the food they have to digest; thus the man who habitually eats great excess of proteid in time comes to have gastric and pancreatic secretions which will digest proteid well, and if the carbohydrates of the food have been limited he will also have a limited capacity for their digestion; consequently if a sudden change of diet is ordered, and, as usually occurs, an excess of carbohydrate is substituted for excess of proteid, it takes a little time before the constituents of the digestive secretions are altered. In the meantime the patient may feel worse for the change of diet which will ultimately benefit him, and the dyspeptic conditions which are temporarily induced may even precipitate an attack of gout. Then the digestion is very often a matter of idiosyncrasy. One constantly meets people who are quite unable to digest some article of food; the commonest example is the inability to digest fat (even a very limited amount of fat), and these people, by constantly avoiding fatty or rich foods, still further limit the capacity for its digestion. The diet which will suit any patient will depend on the digestive capability of that patient and should be regulated accordingly, for the individual must be treated as well as the disease.

The less meat gouty people eat the better they are. As a general rule it should be eaten for one course only and at one meal only, say at dinner. Fish may be taken at lunch, and eggs or bacon at breakfast. Soup should be prohibited. The fats required are best taken in the form of bacon-fat and butter, both of which are easily digestible. The principal carbohydrates should be bread, potatoes, and rice or other milk puddings. The bread should be stale and toasted, so as to destroy some of the lactic acid ferment which may help to induce gastric fermentation. Potatoes and rice are more suitable as sources of carbohydrate than bread if colitis is present. A small quantity of sugar, if well diluted and taken during a meal, is in itself not objectionable. If sugar is taken concentrated, as in the case of sweets, when the stomach is empty, it causes gastric irritation and catarrh and may do great harm. Green vegetables, or vegetables and fruit containing much indigestible fiber or seeds, such as turnips, carrots, raspberries, etc.

should be interdicted. Fruit juice from fresh fruit may be allowed.

The question of alcohol is of the greatest importance; and here again idiosyncrasy has to be taken into account, even more than in the case of diet. Undoubtedly gouty people are better without any alcohol at all, but its exclusion is usually impracticable, and some form of alcohol has to be ordered. Port, beer, and stout should always be forbidden, champagne almost always. A little whiskey or old brandy well diluted, or a light red wine free from acidity, most often agrees. In some cases a white wine suits better than a red. This is a matter entirely of individuality and must be found out by experiment, which experiment the patient has usually performed and can give pretty accurate information as to the results. In any case it is important to regulate the quantity of alcohol taken to the amount that can be consumed as food in the system.

Fresh tea once daily will do no harm in the majority of cases. Tea drunk at every meal is the form of tea-drinking that produces gout.

Regular exercise should be insisted upon, especially in gout occurring in stout patients. Patients must have a daily evacuation of the bowels; as a routine a grain or two of calomel should be taken one night a week, followed the next morning by a saline aperient. The author often orders a pint of hot water to be sipped while dressing: this washes out the stomach and upper part of the small intestine, and assists the action of the bowels. He also recommends a short walk before breakfast.

Chronic gout, if severe, should be treated on the same lines, only more strictly. Alcohol should be altogether forbidden; meat should only be eaten once daily. The food ordered should be such as can be easily digested and leave little residue. The state of the stomach and intestines should be carefully watched, and any signs of dyspepsia, either gastric or intestinal, immediately treated. If the gout does not improve, the effect of rest and a pure milk diet should be tried; it often has a very good result. But chronic gout if long established requires long-continued treatment; it is usually hereditary, which means that the conditions which produced it have

been acting for a long time, and the digestive system has got into a habit of maldigestion that often cannot be rectified. Still, careful attention to detail in diet and selection of suitable food can do much, for we now know that the stomach and intestines can be gradually trained by diet to alter the character of their secretions.

Finally, the great point to remember is that if we have that primitive ideal, an absolutely perfect digestion, we will not have gout; although that is under our conditions of life impossible, still the nearer this ideal is approached by so much the more will our treatment of gout be successful.

*THE TREATMENT OF INSANITY BY THE
ADMINISTRATION OF SHEEP'S
THYROID SUBSTANCE.*

The *Medical Press and Circular* of July 5, 1905, contains an article by LEEPER on this subject. The author used the sheep's gland in tablet form in cases of stupor, mania, and melancholia.

He has in all treated twenty-two patients with thyroid extract, administered in the form of 5-grain tablets. The dose is gradually increased from 10 grains daily to as much as 60 grains in some severe and otherwise intractable cases, and continued until reaction occurs. In all cases the patients have been confined to bed during treatment, have been most carefully nursed, and constant observation of pulse and temperature recorded. The treatment has been discontinued when a noticeable rise of temperature or increased pulse-rate has been produced. In no case has he had any accident or reason to suspect that the patient was unfavorably influenced by the treatment. In one case, which he considered from the first a rather unfavorable one for treatment, a severe gastric crisis seemed to have resulted from the administration of the substance. This was the case of a girl with a neurotic inheritance, who was partially demented and suffered from a large goitre. The treatment entirely removed the large goitre, but failed to produce any change in the mental state.

Of twenty-two cases treated, suffering from various forms of mental trouble, seven were males and fifteen females. Three of the men completely recovered,

and two of these three patients were homicidal to a marked degree.

The author has treated three patients in all suffering from homicidal impulses with thyroid extract. In all of these three cases a marked change took place subsequent to the thyroid treatment, and the morbid impulses seemed to be lost. While the author cannot say that this observation may be regarded as anything more than a coincidence, he commends it to the consideration of those who have a better opportunity of further investigating the results of thyroid treatment with this difficult class of patients. It is interesting to note that it has been suggested by Lugaro to partially extirpate the thyroid in cases of moral insanity; an excessive secretion of thyroid being regarded as the cause of excessive amative-ness, thieving, and other mental warps of degeneracy.

Should the exhibition of sheep's thyroid prove favorable in cases suffering from homicidal impulses, it may be conjectured that the human secretion and that of herbivorous animals may act in different ways and affect mental states in different degrees. The carnivora seem rather more affected by extirpation of the thyroid than herbivorous animals, and much good work in the direction of ascertaining the comparative amount of iodothyroin found in the secretions of different animals, and a comparative analysis of the secretion in herbivorous and carnivorous animals, is needed so as to allow of the selection of that secretion most potent medicinally.

Of the twenty-two patients treated by the author with sheep's thyroid, twelve recovered and were discharged from the hospital, and have not since, so far as he can ascertain, been treated, with one exception, elsewhere or required readmission to St. Patrick's Hospital.

Some of the cases had been for some years insane, and had been transferred there from other asylums and were regarded as incurable by their relatives.

His experience of the clinical symptoms produced by the administration of thyroid substance coincides generally with that observed by Bruce. It seems to act primarily by increasing the cardiac action and pulse-rate, with lowered blood-pressure. In but two or three cases did a rise of temperature first appear as a

reaction to the treatment, and even after the use of the substance in large doses for some weeks the temperature never rose beyond 102°. The author has in all cases ceased to administer the substance upon the advent of pulse or temperature reaction.

All of his cases lost weight rapidly whilst under treatment, but more than regained (often by some pounds) this loss upon the cessation of the gland tablets, thus indicating that the ultimate cellular metabolism of their bodies was stimulated by the effect of thyroid feeding. From his observations of the effect of thyroid he believes it to be imperative upon us to give otherwise ill-doing cases the benefit of a course of treatment by this means. He believes it to exercise a marked and noticeable effect upon the ideational and intellectual faculties.

TREATMENT OF GASTRIC ULCER.

To the *New York Medical Journal* of July 15, 1905, NAMMACK contributes a practical paper on this important topic. A great diversity in the course and indications for treatment obtains in different cases, and each must come up for individual decision, rather than be included under any general proposition. The three leading etiological factors are anemia, hyperchlorhydria, and the various conditions, local or general, which hinder repair. Hence the three leading indications for treatment are to improve general nutrition, to diminish the excessive acidity of the gastric juice, and to put the ulcer at rest. In proportion to the ability of medical measures alone to meet these indications will success attend their employment. And this brings us at once to the fact that treatment must not only be addressed to the ulcer itself, but also to the consequences of the ulcer. Gastric ulcers may be divided clinically into acute and chronic. The acute form with its classical symptoms, pain, vomiting, local tenderness, and hyperchlorhydria, is readily recognized, and it is altogether probable that the vast majority of these cases will heal under medical treatment. In fact, study in the post-mortem room shows that four out of five simple ulcers heal during life. Surgery has only to do with the complications of hemorrhage and perforation. Slight hemorrhage does not re-

quire surgical intervention, and even a single large hemorrhage does not demand operation until medical measures have failed to control it. Death from hemorrhage, according to Moullin, occurred only once in 153 cases in women under thirty years of age. In Fenwick's cases about three per cent succumbed to this cause. Recurring acute hemorrhage and chronic hemorrhage always demand surgical treatment. Perforation of an acute gastric ulcer also demands immediate operation, as every hour's delay costs the patient eight per cent of his chances of recovery, and nothing is to be gained by waiting for the disappearance or amelioration of the shock which is usually present for some time after perforation has taken place.

It is not necessary to enter into details of medical treatment when this has been decided upon. Absolute rest and an ice-bag, rectal feeding at the outset, followed by mouth administration of peptonized milk or other milk foods, expressed beef juice when milk cannot be taken, and raw or soft-boiled eggs, constitute the measures most favorable to repair of the ulcer. Sixty cases have been reported in which nutritive enemata were dispensed with, and the patients were given raw eggs with milk from the very first, and raw scraped meat after the sixth day. Samuel W. Lambert believes that it is safer to withhold stomach feeding, and depend upon nutritive enemata, for at least four days in the mild cases, and for a week or more in the severe cases. This is also the practice in Johns Hoskins Hospital. Nutritive enemata must not be continued too long, as a patient may die from starvation despite their regular administration.

In deciding that we are dealing with an acute gastric ulcer, care must be exercised not to mistake an acute exacerbation of a chronic ulcer. Chronic gastric ulcers form the class of cases of "chronic dyspepsia" which go about from one physician to another, and from one health resort to another, now gaining a little, again losing a lot, until pyloric stenosis or perigastric adhesions produce such changes in the mobility and contour of the stomach, and accompanying chronic gastritis wreaks such havoc in its functioning power, that the unfortunate victim must seek relief from suffering in the

morphine habit. Happy, indeed, is he if he now falls into the hands of a surgeon who can procure for him gastric drainage, and American surgeons at the present day stand second to none in the accomplishment of this beneficial result. Surgery promises more in chronic than in acute gastric ulcer, because the former is solitary in about eighty-seven per cent of the cases in which it occurs, while the acute variety exhibits a multiplicity in more than half (fifty-four per cent). Again, chronic ulcer exhibits a marked proclivity (seventy-six per cent, according to Fenwick) for the pyloric region of the stomach, where by extension and inflammation and adhesions it is apt to produce mechanical obstruction, or displacements, or distortions of the stomach. Adhesions, although meant by nature to serve a useful purpose, prevent the contraction of the ulcer which is necessary to repair. They may also be the cause of hematemesis by erosion of some neighboring viscus. Or by rupture during sneezing, coughing, vomiting, or straining at stool, they may lead to an acute general peritonitis.

ELIXIR OF THYME WITH BROMIDES AND ATROPINE.

WILBERT writes to the *Pharmaceutical Era* of September 21, 1905, reminding us that thyme has long been in use either as a household remedy or as a condiment. In recent years the herb has had little or no use in regular medicine, though the volatile oil and the stearopten derived from it have been used quite extensively. The ancients, on the other hand, appear to have used the herb much more frequently. Dioscorides devotes a considerable amount of space to a dissertation on the medicinal properties of the several varieties of thyme, and among other symptoms, or diseases, says that it was used with much success as a remedy for coughs. While it has been generally admitted that thyme had antiseptic, antispasmodic, expectorant, sedative, and tonic properties, little or no practical application of these several properties of the herb itself was made until about five or six years ago, when a German proprietary preparation, ostensibly a syrup made from a mixture of garden thyme and wild

thyme, was put on the market as a specific in pertussis or whooping-cough. More recently the German "Apotheker Verein" published a formula for a compound syrup of thyme, containing in addition to thyme and wild thyme a mixture of bromide of potassium, bromide of sodium, and bromide of ammonium. The preparation itself was directed to be made from the fluid extract of *thymus vulgaris* and the fluid extract of *thymus serpyllum*. The resulting mixture, in addition to being unsightly, did not appear to represent the active constituents of thyme as well as the proprietary preparation which is now being exploited in this country.

Being desirous of furnishing something that would meet the demands of the physicians in charge of the out-patient department of the Children's Hospital better than the preparation made from the fluid extracts, Wilbert devised, and for nearly a year has used, the following formula for an elixir of thyme with bromides and atropine:

Thyme, 50.0;
Wild thyme, 50.0;
Potassium bromide, 8.0;
Sodium bromide, 8.0;
Ammonium bromide, 4.0;
Atropine sulphate, 0.02;
Sugar, 200.0;
Alcohol 20,
Water 80, of each enough to make 1000 Cc.

The mixed drugs, in moderately fine powder, are moistened with 150 Cc. of the menstruum and allowed to stand in a closely-covered dish for twenty-four hours. The moist powder, after being thoroughly well stirred and mixed, is then packed moderately tight in a glass percolator, and sufficient of the menstruum is then allowed to percolate through it to measure about 750 Cc. In this percolate the atropine sulphate and the bromides of potassium, sodium, and ammonium are dissolved. The resulting solution is then allowed to percolate through the sugar, previously placed in a glass percolator, and sufficient additional percolate from the thyme mixture is subsequently added to make the total quantity of the resulting preparation 1000 Cc.

Each teaspoonful (5 Cc.) represents a total of 0.10 of the mixed bromides and 0.0001 of atropine sulphate, and is accepted as the usual dose for a child ten or twelve years of age.

The resulting mixture is slightly, not

unpleasant to the taste, has given satisfactory results in a large number of cases, and is well worth bringing to the attention of an added number of physicians.

*THE TREATMENT OF ALBUMINURIA
AND ECLAMPSIA OCCURRING IN
PREGNANCY.*

To the *British Medical Journal* of September 23, 1905, BOXALL contributes an interesting and practical paper on this subject, in the course of which he says that in all cases during pregnancy where albuminuria persists, particularly if it be associated with the passage of casts, and with a diminution in the quantity of urine and in urea, it is advisable at once to place the patient under a strict regimen—to enjoy rest, or at least to keep the patient under a strict equable temperature, to place her on a restricted diet, to keep the bowels freely open, to flush the kidneys, and to promote the action of the skin.

The diet in all cases should consist mainly, if not entirely, of milk; but in those cases where milk alone is not readily tolerated, farinaceous foods may be allowed. Meat should be rigidly excluded.

Lemonade, made with fresh lemons, and barley water may be freely taken. When the patient's general condition allows, the plan adopted in Tarnier's clinic in Paris has much to recommend it. A free clearance of the bowel is effected, and water alone is given for the first forty-eight hours. After this, milk, from which the cream has been separated, is exclusively given. Such separated milk can usually be obtained at a very cheap rate from all the larger dairies, and were it more generally known might be usefully employed in this and many other conditions.

As regards the precise form of purge, the author considers that—the main object being in the first instance to clear the bowel—no hard and fast rule can be laid down. But he thinks that it is a mistake to use very drastic measures (unless the patient be comatose), and that there is a decided advantage in the continued use of salines, such as Apenta water, compound licorice powder, and compound jalap powder. The author often gives sulphate of magnesia and sulphate of

soda in one-drachm and half-drachm doses together every half-hour or oftener, till it begins to trouble the patient. Then, and in all cases failing relief by other measures, within a reasonable time it should be followed up by copious enemata of hot normal saline solution allowed to flow slowly into the bowel. By this means not only is the bowel thoroughly cleansed, but by absorption the kidneys are flushed and free perspiration induced. It is probable that additional advantage might be obtained by adding acetate of soda or other diuretic to the normal salt solution.

If under treatment no improvement is effected within a week or ten days, and in every case where serious complications threaten, means should be at once adopted to terminate the pregnancy. But, inasmuch as evacuation of the uterus, though it will almost invariably cause the albumin to diminish, is liable to aggravate the danger temporarily, it is usually a mistake to resort to this measure until some endeavor has at any rate been made to effect improvement in the condition of the patient; and even in severe cases, when the woman is within the last month or so of term, it is usually better to allow forty-eight hours' preparation, unless eclampsia threatens, or such severe symptoms as visual disturbance or paralysis indicate imminent danger to the retina or brain. In any case, when eclampsia threatens, when the urine is suppressed or markedly diminished and the total solids deficient, further measures are called for.

If fits supervene, it is advisable to get them under control as soon as possible, for each fit increases the liability to persistent coma and brings the case appreciably nearer a fatal termination, either from general exhaustion, cardiac failure, edema of the lungs and glottis, or sometimes from cerebral apoplexy. The mere tendency to eclampsia may often be controlled by chloral—given either by the mouth or rectum—in half-drachm doses, combined with a drachm of bromide of potassium, and repeated, if necessary, every hour.

By this method an opportunity is often afforded of using other remedies such as those indicated above, and of supplementing them by more active measures all tending in the same direction. Either

the hot bath or the hot-air bath or hot pack may be advantageously employed in combination with an ice-cap, or, better still, with an irrigating water-cap, to the head. The patient should be subsequently enveloped in blankets, and a free action of the skin maintained. The author frequently employs hot linseed and mustard poultices and dry cupping of the loins, in some instances with apparent advantage in the relief of lumbar pain and in promoting the action of the kidneys. But should a fit actually take place—and certainly if one fit is rapidly succeeded by another—chloroform should be administered. When the fits occur at long intervals, morphine in one-third-grain or half-grain doses given hypodermically, and repeated sufficiently often to put the patient well under its influence, is preferable, for there is an obvious disadvantage as well as danger in keeping the patient under chloroform for hours together.

But if no improvement shows itself the question of phlebotomy and saline injections may be usefully considered. If the woman is plethoric, deeply comatose, and cyanosed, the tension of the pulse great, and the urine scanty, bleeding to the extent of 20 ounces or more is often advantageous. By bloodletting the fits are usually lessened in severity and in frequency of occurrence, and the patient often regains consciousness at once. The bleeding may be followed up by intravenous saline injections, using for the purpose normal solution with or without the addition of acetate of soda, one drachm to the pint of water, which has been previously sterilized by boiling. But the effect of this requires careful watching, for the author has more than once seen consciousness again lost long before the amount of saline solution passing into the vein reached the quantity of blood removed.

If, however, the case is of a serious nature, it is better, as a rule, not to waste time over these measures, especially if the condition of the patient is going from bad to worse, though they may often be carried out with advantage contemporaneously with preparations for emptying the uterus. In many cases the fetus will be already dead, and if born alive the chances of surviving are not very great, and need not be seriously considered when the mother's life is in imminent

danger. The object in view should be to empty the uterus with as little delay as possible, yet with a minimum degree both of uterine action and of artificial interference. All the conditions present in each case require to be carefully weighed. The best method of procedure will be found to depend on a variety of circumstances. In some cases in which the fits are not severe, and occur at long intervals, but in which no decided improvement is manifest, labor may be induced by passing a bougie to the fundus and by rupturing the membranes. This and every other manipulation should be done while the woman is under chloroform; but the manipulation over, it is well to discontinue the chloroform. Dilatation of the cervix may be awaited while the patient is kept under the influence of chloral or of morphine. If, however, labor sets in, and the pains assume a particularly painful and persistent character, as often happens in very young and very aged primiparæ, chloroform should be again resorted to. Under chloroform, which for this purpose need not be given so as to keep the patient deeply under, such pains will be almost invariably found to improve in character and the labor to proceed more rapidly; otherwise labor may be allowed to run its ordinary course, chloroform being reserved for the expulsive stage alone. The labor over, the fits usually subside, and the condition of the kidneys likewise shows, as a rule, an immediate and marked improvement in a copious flow of urine, with diminution in the albumin and increase in urea.

In other cases, in which the fits are more severe and of frequent occurrence and coma pronounced, it is necessary to have the patient under the influence of chloroform, to dilate the cervix artificially, and to deliver expeditiously. Now, for dilatation of the cervix, under such circumstances, either dilators, such as Hegar's followed by the use of Champetier de Ribes's bag, or manual dilatation may be resorted to. Some claim special advantage for dilators such as Bossi's or Frommer's, others employ incisions into the cervix to effect rapid enlargement of the cervical canal; but not having made personal trial of these methods the author leaves it to others who have had special acquaintance with them to speak as to their efficacy. But the cervix having been

sufficiently dilated, delivery of the fetus should be completed either by natural efforts—for the expulsive pains are often particularly strong—or by forceps, craniotomy, or even sometimes by version, whichever offers, according to the circumstances of the case, the easiest and most rapid method of completing delivery.

As a substitute for any forcible method of dilating the cervix followed by delivery as above described, Cæsarian section either by the abdomen or through the vagina by separating the bladder, incising the cervix and lower uterine segment and subsequently suturing the wound, has been suggested and carried out, as also slitting up the perineum with the object of more readily effecting delivery in primiparæ. But of these methods the author has had no personal experience, and at present, by a general consensus of opinion, they stand condemned, except perhaps under very exceptional circumstances.

From what has already been said, it will be gathered that personally the author approaches the subject of the treatment of eclampsia with an open mind. The question which he asks himself in deciding on the course to be adopted in each case is: How can this woman be delivered expeditiously, yet with as little disturbance as possible either from the action of the uterus itself or from manipulative interference?

A METHOD OF GUARDING THE PERINEUM IN LABOR.

CAIE writes to the *British Medical Journal* of September 16, 1905, concerning the importance of guarding the perineum during the second stage of labor, and then gives a short outline of a method which he has employed in a large number of cases with very satisfactory results.

When the fetal head is moderately distending the perineum, the latter and the parts adjacent are thoroughly dried with a hot sterilized towel; all moisture must be wiped off. At the moment when the tension on the perineum is approaching its maximum—this can be determined easily with a little experience—the left hand of the accoucheur is employed in pressing slightly upon the vertex to prevent any premature or sudden expulsion of the head; there is no necessity for passing

the arm between the thighs of the mother. The right hand then grasps the perineum, supporting it in the direct method by pressure thereon of the concavity between the thumb and forefinger of the right hand, interposing between it and the perineum a hot sterilized towel—the small, rough, sanitary towelettes are excellent for the purpose—in such a way that the edge of the concavity between the thumb and index-finger, the edge of the towel, and the lip of the perineum are just in line with each other, a double fold of the towel to fit into the apex of the cavity having previously been made, to supply the deficiency alluded to at that point. Firm pressure is then exerted at every pain, through the bitemporal diameter of the fetal head, if there appears to be any undue stretching or tendency to laceration. No attempt is made to push the head forward until the occiput ceases to engage behind the pubic arch. By these maneuvers three purposes are served:

1. By firm pressure through the bitemporal diameter premature extension of the head is prevented, without retarding its progress.

2. By means of the drying of the parts and the hot towel a much firmer grip, and consequently much greater support, of the perineum can be obtained than could possibly be produced by the bare hand on a surface which is usually very slippery.

3. Uniform pressure is obtained on all parts of the perineum, and the part where there is most stretching receives its due measure of support.

On the head being delivered, and when restitution has taken place, the shoulders are lying in the anterior posterior diameter of the outlet, and their delivery again endangers the perineum to a much greater extent, the author thinks, than is usually supposed, chiefly due to the prevailing practice, as recommended in text-books, of allowing the posterior shoulder to be born first. If, now, after the head is born we exercise gentle traction backward, the next pain will usually cause the anterior shoulder to free itself from its position behind the pubic arch, while the perineum lies over the posterior shoulder and is subjected to only a moderate degree of tension, and if the outlet is narrow the anterior arm can usually be extracted with very little difficulty after the

anterior shoulder is born, thus substituting a much smaller diameter of the child. If we allow the posterior shoulder to be born first, the anterior shoulder remains firmly fixed behind the pubic arch, while the posterior shoulder sweeps over the perineum and stretches it again to its utmost limit. No "guarding" can be carried out at this point, because if any pressure backward on the shoulders be exerted, the progress of the child is seriously retarded.

The author puts forward this brief outline of his modified method with a considerable amount of diffidence, knowing that it is at direct variance with some of the text-book canons of the second stage of labor; but since he has employed it in about 400 consecutive cases of labor he has found it singularly effectual.

TREATMENT BY VENOUS HYPEREMIA.

H. TILLMANS discusses the method of venous hyperemia as applied in the treatment of various conditions (*Deutsche medicinische Wochenschrift*, Jan. 26, 1905). Although Bier is the pioneer of this form of treatment as it is practiced to-day, the suggestion was made years ago by Ambroise Paré, and later others employed similar means. Tillmans confines himself to Bier's methods, which vary according to the situation and kind of disease. In general terms it consists in applying several turns of a Martin's bandage or of a webbed elastic bandage above the situation which one wishes to render hyperemic. This must be adjusted only tight enough to compress the veins. In order to prevent undue pressure, it is well to apply the bandage over a layer of gauze or wool, and when it is necessary to apply it often, then it is wise to change the line of compression. When applied to an arm one first sees the subcutaneous veins of the hand and forearm swell up, the forearm becomes blue, and the hand bright-red, with white patches; later the edematous swelling increases, but the skin temperature is not changed. If applied tightly the bandage causes extreme hyperemia, with considerable pain; the arm becomes heavy, the skin cold, and hemorrhages occurring into the tissue cause a speckled staining. The temperature may then sink by 2° or 3°. In all

degrees of hyperemia the blood in part is driven more through the vessels of the medulla of the bones. Tillmans says that all extreme hyperemia is dangerous, and must not be employed in practice. As concerns the difference of situation, the upper extremity is easier than the lower for Bier's hyperemia. The hip-joint has, so far, not lent itself to this form of treatment.

He gives the details of applying the bandages to special parts. When the method is correctly applied there are no risks, there is no discomfort, and any untoward occurrence following the application denotes an incorrect application. In connection with Bier's hyperemia, one can apply Junod's suction apparatus with good effect. Bier speaks of this combination as "mixed hyperemia." Turning to the conditions which are favorable for this treatment, he mentions in the first place tuberculous joints. If an abscess is present it must be opened, and a few days later one applies the hyperemia. The applications should be short at first, but daily. Severe tuberculosis with amyloid disease and pulmonary tuberculosis must be taken as contraindications for the application. The same may be said of joints which have assumed a bad position, and which are best treated by resection. For joints with effusion, injections of iodoform glycerin should be employed, and at a later date the hyperemia will be found useful. Other forms of tuberculosis are but little suited for this treatment. Acute and subacute inflammations of joints, and especially gonorrheal inflammations, yield to this method well. The hyperemia must be thorough, and it will be found to act in diminishing the pain early. In all cases careful active and passive exercises should be also carried out. Rheumatic arthritis also is adapted for the treatment. Good results are further obtainable in chronic stiffness of joints after trauma. In all cases in which it is desired to apply a powerful resorbing influence the hyperemia will be found to work well. In acute inflammatory conditions of the soft parts it does harm rather than good, and should not be tried. In neuralgias and other painful conditions, however, the sedative effect is very valuable. Tillmans gives many details of interest in his original paper. —*British Medical Journal*, Sept. 16, 1905.

HYOSCINE IN PARALYSIS AGITANS.

HIGIER (*Neurologische Centralblatt*, May 16, 1905, p. 434) records favorable results with hyoscine in paralysis agitans, intractable chorea, and various neuroses. He gave it with good results in over fifty cases of paralysis agitans in doses of 0.2 to 0.3 milligramme, either in pill or in solution. In these doses it was given for a whole year, and one patient took it in alternation with duboisine for seven years. When given in pill before the midday meal a feeling of languor and sleepiness came on after the meal, with dryness of the throat, followed by sleep lasting about an hour, and succeeded by a quiescent stage of three or four hours' duration, in which the patients were quite free from tremor. A persistent lessening of the tremor was the rule. Occasional intolerance was observed with quickening of the pulse and respiration (to 40 per minute), dimness of vision, and the appearance of hyaline casts in the urine. The prolonged use of the drug in the cases in which it was tolerated produced no ill effects. In three cases of intractable chorea (one a case of chorea gravidarum), in which the administration of arsenic, bromides, salicylates, chloral, and morphine had been without effect, one-milligramme doses of hyoscine daily reduced the violent movements in the course of a week. In certain cases of senile pruritus he found it of value in doses of 0.3 to 0.5 milligramme daily, but in some cases at least its administration was combined with that of small quantities of antipyrin. In severe cases of hyperchlorhydria, when atropine failed hyoscine was also unsuccessful. Good results were obtained with the drug in spasmodic asthma, other narcotic drugs given during the attack proving ineffectual. During the attack he administered large doses (up to 0.25 and 0.5 centigramme), subcutaneously conjoined with caffeine, with very great relief, and during the interparoxysmal stage he gave it persistently for weeks in minute doses. He also observed good results in the treatment of morphinism, but found it unsatisfactory in alcoholism and recurrent mania. But in acute mania its hypodermic injection resulted in eight or nine hours' sleep being obtained, with a consequent improvement in the general mental state. In such

cases he considers that heroic doses of hyoscine should only be given when other drugs had been tried and had failed.—*British Medical Journal*, Sept. 16, 1905.

THE RED-LIGHT TREATMENT OF SCARLET FEVER.

Quite recently Cnopf, of Nürnberg, has reported some results with the red-light treatment of scarlet fever which are distinctly encouraging. The method of applying the treatment in these cases is important, as all daylight must be permanently excluded until the eruption of the disease has completely disappeared. The windows for their lower two-thirds should be covered with some tissue completely impermeable to light, while the upper one-third should be covered with ruby-red silk. At night the room should be treated as a photographic dark room and only lights with red shades should be allowed. The importance of completely excluding everything but the red rays is demonstrated by some of Cnopf's experiences. He found that even after the scarlatinal rash had apparently disappeared exposure to daylight for two or three minutes sufficed to bring it back. He was compelled, therefore, to make this test in all cases before allowing patients to be subjected to ordinary light. The effect of the red-light treatment on scarlet fever is twofold. The fever, which under ordinary treatment usually persists until the rash fades, falls, almost by crisis, and reaches normal in three or four days instead of in seven or eight days, as is the case under ordinary treatment. The skin lesion is also markedly affected, the red color so characteristic of the disease gradually fading. The complications of the disease are apparently not affected, as in several of Cnopf's cases secondary angina or pneumonia served to cause an increase in the fever as usual.

The question naturally arises whether it is the red light or merely the exclusion of all light which is responsible for the changes noted by Cnopf. The query is an old one. Years ago it was noted that exclusion of all light from smallpox led to less pitting than daylight treatment. Cnopf, however, thinks that the mere exclusion of daylight is not the responsible agent, but that the red rays have an ac-

tual curative effect. However much we may be lacking in explanation of these observations, and however much we may doubt the actual value of the treatment, the success achieved seems to indicate that the method is worthy of more extended trial.—*Journal of the American Medical Association*, Sept. 9, 1905.

THE ABUSE OF BROMIDES IN EPILEPSY.

SPRATLING writes on this subject in the *Medical Record* of September 2, 1905. Years ago he became convinced that the bromides as generally administered did vastly more harm in the treatment of epilepsy than they did good, and the ten years' experience he has had at Sonyea in the treatment of nearly two thousand cases has strengthened that conviction. He does not hold that the bromides always do harm, or that they fail sometimes to do good in the treatment of epilepsy. He thinks they have a limited range of usefulness in the power they possess of suppressing epileptic convulsions.

But he believes he can say without reservation that he has yet to see the first case of epilepsy cured by the bromides alone. He himself has never given the bromide of potassium to an epileptic. In certain of the epilepsies in women in which the attacks group themselves about the menstrual epoch the writer has used some of the other salts with good results, but even then the case must be carefully selected.

When visiting the Bielefeld Colony in Germany years ago, he learned that the bromides were constantly being less employed. At the Craig Colony the average dose of the drug now is fifteen grains a day, five grains to a dose. Some patients get more than this, while many get none.

A short time ago the amount of the drug that was being used was reduced nearly one-half. The result was a considerable temporary increase in the number of attacks, but in a little while the attacks fell to their former number, most of the patients showing mental and physical improvement while free from bromism. To stop the bromides in a chronic epileptic—if it be cautiously done—is sometimes more valuable than to keep him saturated with them to the point of toleration. There is no better proof of the failure of the bromides to cure epi-

lepsy than to stop them after years of use and watch the attacks double or treble in number.

Sudden withdrawal of the bromides without an effective substitute is never advisable. Some epileptics will stand it, but others will be sure to succumb to serial attacks, or to the graver condition of "status epilepticus" which so frequently terminates in death. Most, probably all, patent nostrums recognize the power the bromides have of effecting false and superficial "cures" in epilepsy—cures that terminate with the withdrawal of the nostrum. During the past nine years the author has personally analyzed twenty-seven such nostrums, and found that the basis of them all, without exception, was the bromide of potassium.

In the hands of laymen these nostrums do infinite harm. In contradistinction to the one point of value bromide possesses in the treatment of epilepsy—that of lessening cortical irritability—there are numerous results from its unscientific use that sometimes make it a positive menace to the recovery of the patient. The author is convinced that recoveries occasionally occur in epilepsy, not because of the use of the drug, but in spite of it.

The most remarkable recovery from epilepsy he has known was in a man who had suffered from the disease eighteen years, who had in all 50,000 to 60,000 seizures, who was given for years 120 to 140 grains daily of bromide with no effect but a steady depreciation in his physical condition, and who began to make a complete recovery after entering the Colony, where the amount of the drug was reduced month by month until at the end of the eighth month he was getting fifteen grains a day only. In this case an effort was made to correct deep-seated errors in metabolism by giving a drug that only augmented the primary fault. This single instance is worth little more than to show that epilepsy is not always relieved by bromide alone; the point is, there are thousands of other cases like it.

The chief difficulty in giving the bromides lies in our inability to prescribe the precise individual dose the patient's condition demands. We have paid too much attention in the past to the number of grains administered, and too little to results attained. Notwithstanding its

comparative harmlessness, the drug should be used in epilepsy with the same scrupulous care that we use aconite in fever or digitalis in heart disease, if we expect to make our patients feel its value, and miss its faults.

In no case let us forget there is a point of physiological toleration—of therapeutic usefulness—beyond which we should not go. Barring exceptional cases, it is never necessary to push it to the point of inducing bromic acne, while to cause bromic dementia with it is a blunder inexcusable. For some years after its opening the number of patients admitted to the Craig Colony with bromic dementia was greater than now.

Blunting of the intellectual faculties is a notable result of the bromides, and is first shown in loss of memory. The author formerly thought this condition was due to the seizures, but witnessing the complete restoration of memory in so many cases after the bromides had for some time been withdrawn, there was no alternative but to ascribe it to the use of the drug.

Since the origin of the colony treatment of epilepsy the bromides have, to a certain extent, declined in favor. This decline was a logical result of the recognition of the necessity for the treatment of the individual *in toto*, instead of aiming at the suppression of a symptom only.

We have only to consider the physiological effects of the bromides to understand why they are of so little use in epilepsy. On the respiration ordinary doses produce but little effect; in larger doses they act as depressants. On the alimentary canal they often act disastrously—irritating the mucous membrane and interfering with the reflex activity of the stomach in a way to check the normal secretion of gastric juice, which impairs digestion. They cause constipation, heavy coating of the tongue, and foul breath, a bad taste and a pasty feeling in the mouth, loss of appetite, and not infrequently nausea and diarrhea.

On nutrition they act unfavorably in some cases by lessening metabolic changes through depressing the nervous system. They produce unsteady gait; myasthenia and often loss of sexual vigor; forgetfulness and slight degrees of aphasia, usually shown in the misuse of words and the wrong formation of sentences.

THE TREATMENT OF ANGINA PECTORIS AND ALLIED CONDITIONS.

OLIVER writes in the *Lancet* of September 16, 1905, in an interesting way concerning this question. He believes that for patients suffering from pseudoangina much can be done. To them a good prognosis can usually be given. In all cases of angina, whether true or false, attention ought to be directed to the state of the stomach and bowels. Dyspeptic troubles must be rectified and medicines given to check decomposition of food, to prevent flatulence, and to correct constipation. Tobacco smoking must be entirely prohibited with some people and reduced to a minimum with others. A similar remark applies to the use of alcohol.

The prognosis of angina vera, on the other hand, is grave, and yet in some instances by appropriate treatment considerable relief can be obtained, impending attacks warded off or shortened, and life prolonged. Once a patient is the subject of well-marked angina pectoris that individual is living, as it were, on the verge of a precipice. At any moment and without warning the final attack may come. All sources of worry and anxiety should as far as possible be removed from the patient. Of all drugs that give relief there is none that can compare for immediate action and efficacy with nitrite of amyl and medicines of this class. Inhalation of a few drops of amyl nitrite will in many instances cut short an attack. We are indebted to Sir Lauder Brunton for the employment of this drug in angina pectoris. It is an illustration of what humanity has gained by the application of the experimental method to medicine. By the influence of amyl nitrite as a vasodilator the peripheral arteries are opened up, the circulation rendered easier, and the strain removed from the heart. Where there are signs of a failing heart behind the peripheral arterial constriction, it is often desirable to combine the digitalis or nux vomica with, for example, solution of ethyl nitrite. The other nitrites—*e.g.*, nitroglycerin, liquor trinitrini, etc.—are equally useful.

There is a class of cases of true angina pectoris in which amyl nitrite and its congeners have little or no effect, but where in fact they often do harm. The patients at any rate feel worse. In these persons the arteries are probably so diseased that

they cannot respond equally all over to the action of the drug, or the arterial tension is already low, and as a consequence some unpleasant effects are produced and considerable cerebral and cardiac embarrassment experienced. In some cases of angina vera nothing short of the administration of morphine or opium will give relief. During the intervals, nux vomica as a cardiac and nerve tonic may be given, or arsenic may be tried. Iodide of potassium in many cases, without there being necessarily a syphilitic taint, lengthens the interval between the attacks and restores confidence to the patient.

It is well in all cases of angina pectoris to inform the relatives of the serious nature of the seizures. In conversation with the patient and in trying to get him to moderate his occupation and alter his course of life, the occasion might present itself of gently hinting to him that the attacks are attended with a certain amount of danger. Before doing this, however, the medical man ought to form some estimate of the nervous constitution of his patient, and be guided thereby as to the advisability of imparting or withholding this information.

CONVENIENT POINTS FOR INTRAMUSCULAR INJECTION IN THE TREATMENT OF SYPHILIS.

PEDERSEN contributes a paper on this subject to the *Medical Record* of September 2, 1905. He asserts that the progress which has recently been made in the treatment of syphilis by injections has been most satisfactory, and indicates this method to be the choice in severe cases. The chief objection which has always been urged against the injection method; however, has been the secondary occurrence of subcutaneous or intramuscular nodes and infiltration. After a little experience the writer was impressed with the fact that possibly these defects arise only because the injections are repeated at the same point, at intervals too brief and spaces too close to allow full absorption of the drug injected. Salicylate of mercury is probably most commonly employed at the present time, and is the preparation preferred by the writer. His method of using this drug, and therein correcting occurrence of nodes, is as follows: The gluteal region is regularly

rants by the vertical line of the intergluteal cleft and by the horizontal line passing through the upper limit of the cleft. The injections are given once a week, three in the upper part of each quadrant in the following order, alternating from week to week between the right and left sides: Right upper quadrant, 1 inch from the middle line; left upper quadrant, 1 inch from the middle line; right upper quadrant, 3 inches from the middle line; left upper quadrant, 3 inches from the middle line; right upper quadrant, 5 inches from the middle line; left upper quadrant, 5 inches from the middle line; lower right quadrant, 1 inch from the middle line; lower left quadrant, 1 inch from the middle line; lower right quadrant, 3 inches from the middle line; lower left quadrant, 3 inches from the middle line; lower right quadrant, 5 inches from the middle line; lower left quadrant, 5 inches from the middle line. The injections are then repeated, beginning at the same point as the first. Thus it will be seen that thirteen weeks intervene between any two injections at the same point. All tendency toward the promotion of nodes is obviated, and full opportunity is given for complete absorption of the drug.

The writer has made several hundred injections in this manner, and has never had any tendency toward infection or the production of painful lumps and nodes which persisted more than about two days after the injection, and even these have been rather rare. A large caliber needle, $2\frac{1}{2}$ inches under the head, is advised, which has been boiled fully five minutes before being used. Sterilized emulsion of the salicylate of mercury 1 grain, in 10 minims of benzoinol, is employed. The skin is sterilized by scrubbing with green soap, then with alcohol, and painting freely with iodine. When the skin is deeply stained by the iodine the injection is made. Massage of the point of injection is then carried out for two or three minutes vigorously with sterilized gauze. The mouth of the hole is again painted with iodine, and flexible collodion is used as a seal. No other dressing is made. In this way thus far no difficulties whatever have been encountered, and the patients greatly prefer the injection to any other method of treatment.

CONVULSIONS IN CHILDREN.

In the *Clinical Journal* of September 13, 1905, CAUTLEY has this to say in regard to the treatment of infantile convulsions. In the first place the treatment must be directed to stopping the fit actually in progress, and secondly to prevention of recurrence. Some physicians avoid all active treatment during the convulsions as irritative. On the other hand, it is clear that it is more than difficult to irritate an unconscious and insensible child. Moreover, the longer a fit lasts and the more frequently it is repeated, the greater is the risk to life, so steps should at once be taken to cut it short. When summoned to a child in a fit the doctor should take with him chloroform, chloral hydrate solution of known strength, and perhaps also, though less necessary, amyl nitrite, a solution of morphine, and a hypodermic syringe. Probably the fit will be over by the time he arrives, or if not, the child will have been undressed and given the usual hot bath, with or without mustard in it. As soon as a fit starts the child should be laid down, with the head a little raised, and the clothes loosened or removed. All unnecessary disturbance must be avoided and the child kept quiet. A bath at 95° F. to 100° F. may be given with a view to relieving the congestion of the brain, or a dry mustard pack may be employed as less disturbing. After the child has been in the bath for five minutes it must be wrapped up in hot blankets. The bath is most useful in cases due to colic, and is contraindicated in fits due to syncope or collapse of the lung. It does not interfere with other measures of treatment. While in the bath and after, cold affusions should be applied to the head by cloths wrung out in cold water or by an ice-cap.

Treatment must be directed to the alimentary tract, inhalations of chloroform being given in the meantime to control the spasm. The lower bowel should be washed out by salt solution, one drachm to half a pint of warm water, or sodium sulphate in the proportion of half an ounce to half a pint for an older child, or a glycerin enema may be given. After the bowels have acted a small rectal injection of chloral hydrate should be given, 3 to 10 grains, according to the age of the child. Children stand chloral well.

With it may be combined potassium bromide, double the quantity, or 10 to 20 minims of tincture of musk. Musk is often recommended strongly, but the author believes it unnecessary, if not merely expensive and useless. The rectal injection should not be of more than two ounces bulk for a child one year of age, and the buttocks must be held together for a few minutes after injection. The dose of chloral can be repeated in an hour, if needful. If it is not retained, a hypodermic injection of one-twentieth of a grain of morphine for a child aged six months, repeated in an hour if needed, may be given. Perhaps this is a more suitable remedy than chloral, if there is great cardiac weakness, but on the whole reliance should be placed mainly on chloroform and chloral. Chloroform inhalations must be given until the chloral begins to act, and the child can be kept under its influence for a considerable time. Should there be evidence of the existence of unsuitable food in the stomach, vomiting may be induced by tickling the fauces with a feather or by ipecacuanha wine between the spasms. As a rule irritant food has passed through the pylorus before the fit is induced. Inhalations of oxygen gas are very beneficial in cases with cyanosis.

As soon as the child can swallow, a dose of calomel should be given. It empties the intestinal tract and relieves cerebral congestion. Emetics are not advisable at this stage, for the act of vomiting may induce another fit.

Lancing of the gums is rarely indulged in now, but it may prove beneficial as a mode of bleeding in cases of undoubted cerebral congestion due to asphyxia. Leeches are of use in uremia in older children, but it must be remembered that children do not stand bleeding well.

As soon as the secretion of urine is abundant it is evident that the kidneys are working efficiently and that active treatment can be discontinued. Abundant urination may be looked on as a critical phenomenon announcing the speedy termination of the fit.

After the attack the child must be kept quiet for a few days on a light diet, the bowels carefully regulated, and moderate doses of bromide given. During sleep the room must be kept well ventilated, the feet warm, and the head raised.

Should bromides prove inefficient, even in large doses, they may be combined with chloral. Sometimes urethan is more useful than chloral. Borax, salts of zinc, belladonna, digitalis, musk, ergot, antipyrin, and phenacetine have all been recommended. A combination of bromides with belladonna and valerianate of zinc may prove successful when all else fails.

Where there is definite disease the treatment is naturally that appropriate to the disease. All sources of reflex irritation should be attended to, such as adenoids, enlarged tonsils, worms, sources of genital irritation, ear and eye troubles.

The general health and diet should be most carefully watched. Rickets requires appropriate treatment. In fact, the drugs most useful in the prevention of infantile convulsions are cod-liver oil, malt, and iron. In other words, the important indication is to improve the general condition of the child and thus increase the nutrition of the central nervous system, rendering it less liable to explosive disturbance from reflex irritation.

THE TREATMENT OF PNEUMOTHORAX IN TUBERCULOUS SUBJECTS.

WEBER tells us in the London *Lancet* of September 16, 1905, that the treatment of pneumothorax occurring in tuberculous subjects is that of pneumothorax generally, together with the hygienic measures peculiarly suitable for the pulmonary tuberculosis (open-air, feeding, climate), especially in regard to after-treatment. The question of treatment may be considered under measures to be adopted at the commencement of the pneumothorax, and those which may become advisable later. If the onset be accompanied by symptoms of collapse, diffusible stimulants will be required. Sometimes special cardiac stimulants, such as digitalis or strophanthus, are given. In some cases sedatives, such as codeine or a small hypodermic injection of morphine, are indicated to relieve pain and excitement, but great caution must be exercised in regard to the dose as a decided narcotic effect may easily be harmful. Aperients may be serviceable to diminish the congestion of the portal system when pneumothorax occurs in relatively full-blooded individuals. The

patient should not be unnecessarily moved about, as movements increase the dyspnea and distress. Inhalation of oxygen may, perhaps, be of temporary use. Whenever there is reason to believe that the distress is due to excessive tension of the pneumothorax ("valvular pneumothorax") the air may be allowed to escape by (West's method) a cannula with an india-rubber tube attached, the other end of the tube being allowed to hang down into a basin of sterilized water, or the air may be allowed to escape through a cannula into antiseptic dressings. The necessity for paracentesis probably arises only in a very limited number of cases, and in most of them not very long after the onset of the pneumothorax.

Here the author alludes to quite modern trials in regard to the treatment of pneumothorax. Dr. H. von Schrötter relates the case of a boy, aged seventeen years, who having previously enjoyed good health began to suffer from fever and sweating. On April 10, whilst sitting still, he felt sudden pain in his chest, became dyspneic, and was obliged to go to bed. On April 15, after admission to the hospital, he was found to have a closed pneumothorax on the right side, without any fluid effusion. The right lung was certainly quite collapsed. The treatment adopted consisted in the aspiration of air from the pleura and the introduction of oxygen into the lung by a metal catheter inserted into the right bronchus. At the first sitting about 2200 cubic centimeters of air was removed from the right pleura, and at the second sitting 500 cubic centimeters more. The effect of this treatment was watched and controlled by Roentgen ray examination. The last remains of the pneumothorax were made to disappear by the help of long-continued inspiration of oxygen under increased pressure, using an inhalation mask for the purpose. The tuberculin test proved the existence in the patient of localized tuberculosis. Though the result was good it is certainly possible in the light of other cases to suppose that the pneumothorax might have been rapidly recovered from, even without the special means adopted to reexpand the lung. In connection with this case it should be mentioned that L. Brauer has devised an ingenious apparatus for increasing the pressure of the air in the

lungs during operations in which the pleural cavity has to be opened. He has likewise suggested its possible use as a method of treatment for pneumothorax in tuberculous subjects.

In some cases, as already stated, recovery from the pneumothorax (without operative treatment) may take place without any fluid being poured out into the pleura, but in most cases the occurrence of a succussion splash soon shows the presence of a serous, seropurulent, or purulent effusion—in fact, that the case has become one of hydropneumothorax or pyopneumothorax. The further treatment of cases of tuberculous hydropneumothorax and pyopneumothorax must to some extent depend on the general condition of the patient. In the “terminal” cases, and when pulmonary tuberculosis is extremely advanced, a regular surgical operation can scarcely be recommended, but the fluid may be removed by paracentesis. In cases of pyopneumothorax without extensive pulmonary tuberculosis an operation like that for ordinary empyema is likely to give the most satisfactory results, though repeated paracentesis has often been practiced, occasionally, as the author points out later, with excellent results. Hydropneumothorax, as already stated, does not always turn into pyopneumothorax, and has sometimes, like pneumothorax without liquid effusion, healed spontaneously. It is usually treated by paracentesis, but if the tuberculosis be not too advanced and repeated paracentesis fails an operation like that for empyema and pyopneumothorax may possibly, as S. West points out, be undertaken and lead to cure. It may be likewise incidentally noted that in one case at least a dry pneumothorax in a tuberculous subject has been treated by incision.

In considering the results in individual cases obtained by operation it must not be forgotten that phthisical patients with pyopneumothorax (or at all events with a turbid serous or seropurulent effusion) have been known to live a considerable time and even to have recovered, though operative treatment was limited to paracentesis. S. West gives relatively good results in a tuberculous hydropneumothorax by paracentesis and in a case with seropurulent effusion by incision. L. Galliard quotes illustrative cases of tuberculous pyopneumothorax in which surgical

treatment (incision or resection of part of a rib) led to good results. Leyden described two cases of tuberculous pyopneumothorax in which a successful result was obtained by drainage with resection of part of a rib, aided by general treatment against tuberculosis. One of these patients has already lived two and a half years from the onset of the pneumothorax. Case No. 22 of Emerson's collection from the Johns Hopkins Hospital illustrates an at first fairly successful result of operation on pyothorax following a pneumothorax in a tuberculous subject. The improvement did not last, but the case was altogether an unfavorable one. D. W. Finlay in 1904 recorded the case of a young man who, in 1900, at the age of seventeen years, was admitted into the Aberdeen Royal Infirmary with tuberculous pneumothorax on the left side. There was some fluid effusion, serous at first, but afterward becoming purulent. The case was treated by free incision, and on different occasions resection of portions of several ribs, and was likewise treated by open air on the balcony of the wards. The patient regained sufficient health to resume his occupation, but there still remained a discharging sinus and a cavity of the capacity of one and a half ounces, the daily discharge of pus being about a teaspoonful; moreover, the urine had for some time contained albumin. Bäumlér narrated the case of a lady, aged twenty-six years, in whom the empyema following a tuberculous pneumothorax was subsequently treated in Denmark by repeated extensive resections of ribs, but a small thoracic fistula still remained. In this connection the author also refers to the second of the three cases which he narrates in his paper. The patient in question, who was operated upon for pyopneumothorax in January, 1903, is now living in fair health, but there is still a thoracic fistula discharging slightly. Her urine was free from albumin when examined in April, 1905. In February, 1904, at the Clinical Society of London, E. M. Corner showed a man, aged thirty-two years, in whom pulmonary tuberculosis was first detected in 1898. In 1901 and 1902, on account of pyopneumothorax, ribs were removed on the principle of Estländer's thoracoplasty. The result was complete healing, except for an aerial

fistula, though which air could be expired. In the discussion at the Clinical Society when the case was shown, W. G. Spencer stated that he had operated on a case of pyopneumothorax and had removed a lot of caseous material from the lower lobe of the lung, and that apparently the disease had not advanced for three years following the operation. In conclusion he remarked that cases of tuberculous pyopneumothorax in which anything like an Estländer's operation can be recommended must be very rare indeed.

Whatever local treatment be adopted, every endeavor must be made to improve the patient's general condition, for, even if he recover from the local condition of pneumothorax, it is upon his general state of health (connected with his occupation, food, and general mode of life) that his power of resisting the advance of the tuberculosis mainly depends. In the chronic cases of hydropneumothorax and pyopneumothorax the patient should have a generous diet, plenty of fresh air, and all the advantages of the modern treatment of pulmonary tuberculosis. In this connection certain writings of F. Penzoldt and L. Spengler are very instructive. Penzoldt's patient was a medical man, aged thirty years, who in April, 1900, presented physical signs of tuberculosis in the lower posterior part of the left lung; tubercle bacilli were detected in the sputum. At the commencement of June, 1900, pneumothorax of the left side developed, and after two months became converted into a pneumothorax, the pus being apparently of the *empyeme hrais-seux* variety. By the end of August the air in the pleural cavity was completely replaced by the fluid effusion. The treatment adopted consisted in repeated tapings and iodoform injections, together with rest in the open air and good feeding. To the strict observance of modern open-air principles Penzoldt in great part attributes the successful result. After July, 1900, there was no fever. During 1901 and 1902 the signs of empyema slowly cleared up and the heart gradually returned to its normal position. The cough and expectoration diminished and finally altogether ceased, and the patient's weight steadily increased. Finally, he was able to return to work, and at the end of 1904 only slight impairment of reson-

ance could be detected over the left lung, at the apex, and just outside the cardiac area.

L. Spengler's results are quite as remarkable and speak highly in favor of the climatic and general treatment at Davos. Out of twenty cases of tuberculous pneumothorax under his care at Davos complete apparent cure resulted in five of the patients (ages between eighteen and thirty years), with the exception that a small chronic pleuritic effusion remained in one of them. A serous or seropurulent effusion was present in all five cases, but operative treatment was limited to tapping. Two of the patients were under observation several years after their recovery.

WHAT MEANS DOES THE MODERN OBSTETRICIAN EMPLOY TO PREVENT OPHTHALMIA OF THE NEWLY-BORN?

EDGAR contributes to the *Medical News* of September 23, 1905, a valuable paper on this subject. He expresses his faith in Credé's method for the prevention of ophthalmia neonatorum. In both hospital and private cases he is now accustomed to make use of this method without exception. After repeated experiment with protargol he has found nothing to compare with silver nitrate in two-per-cent solution as a prophylactic. As soon as the child is born its face is carefully washed with boric acid solution, separate wipes being used for each eye, and the lids rubbed from the nose outward in each case. Then whether infection is suspected or not, two drops of a two-per-cent solution of silver nitrate is dropped into each conjunctival sac. The excess is washed away in about thirty seconds with a normal saline solution.

In his experience solutions of less than two per cent do not destroy bacteria, and although solutions of three per cent are harmless, they are apt to cause "silver catarrh," and are not required.

Of the many substitutes recommended it is very difficult to determine whether they are equal to or have any superiority over Credé's two-per-cent nitrate of silver, but in his experience, after experimentation in hospital practice, protargol and argyrol are not equal in efficiency to the nitrate of silver treatment.

Antepartum vaginal cleansing in sus-

pected cases and Credé's nitrate of silver method after birth cannot absolutely abolish gonorrheal ophthalmia gonococcus infection, but they can reduce the morbidity to practically *nil*. As long as men with gonorrhea are permitted to marry and women with gonococcus infection to conceive, so long will there be danger of gonorrheal ophthalmia in the newly-born child.

The author's faith in the prophylactic power of the nitrate of silver method is so strong that he attributes all apparent negative or ill effects of the method to the presence of antepartum infection of the eyes, to unskilled application, or to improper or inert solutions.

Dauber states that antagonism to Credé's method has developed in quite recent years. First, it has been shown that the method has not been carried out properly—this, of course, being no fault of the method itself; still, as gonorrheal blindness has been reduced only less than one-half, something is wrong. Midwives should be compelled to use it. The second objection is that Credé's method tends to increase eye morbidity by causing "silver catarrh." This has led to the use of argyrol and protargol. Zweifel uses the former, and neutralizes with sodium chloride. His morbidity in over 5000 cases has been but 0.23 per cent. Scipiades finds argyrol a certain prophylactic. From a number of other clinics come equally good reports as to protargol.

Recently in Hofmeier's clinic Credé's solution has been reduced from two per cent to one per cent, following the custom of Runge, Fehling, and Gusserow. Since this reduction the morbidity in over 5000 cases has been but 0.33 per cent, with no silver catarrh worth mentioning. Thus while there was no dissatisfaction with Credé's method, the author concluded to give argyrol and protargol a suitable trial. Not only were the results less favorable, but more silver catarrh was caused by Zweifel's method than by any other single procedure. Hence, at the Hofmeier clinic, Credé's one per cent is regarded as the best prophylactic. Hofmeier also uses an antepartum douche in his clinic, which is naturally prophylactic to ophthalmia neonatorum. Incidentally it is stated that the morbidity of this condition varied in the past with that of sepsis. When puerperal fever used to be

epidemic, there was an eye morbidity of 50 per cent at times. General asepsis, etc., brought this down to 10 to 12 per cent, while Credé's method has almost obliterated morbidity of the eye in individual clinics.

Wintersteiner analyzes 122 cases of actual ophthalmia neonatorum. Two were undoubtedly cases of antepartum infection. In forty others the disease did not develop until after the fifth day, and at various intervals, hence regarded as possibly of postpartum infection, although some authorities believe in delayed intrapartum causation, due to weakened virulence of germs. Credé's method is of great value within certain limits, but cannot prevail against anomalous cases, such as those of late development. To include the latter, whatever the causes, prophylaxis must be kept up through the puerperium.

Wintersteiner uses Stellwag's method, viz., potassium permanganate douching (1:1000) at short intervals, with Credé's solution twice daily. In his series of cases he obtained complete cures in every instance.

Alvarado has been an industrious compiler of statistics, but does not always give the names of the clinics. In one series of 6397 cases a single drop of Credé's solution was instilled and not a single infection followed. In a large series of over 15,000 cases about two per cent developed the disease in spite of Credé's method. Other clinics go still higher (up to five per cent). However, in clinics in which the solution used was but 1.5 per cent, the morbidity was much greater, running as high as 7.5 per cent, and even 12.2 per cent. As Alvarado is a Spaniard, many if not all of his figures are probably of local origin. As for protargol, the only large figures he knows of are those of Rubesca, of Prague (morbidity of two cases in 1100). These read well, but what are they in comparison with the old records of Leopold (3000 cases of Credé's method without any morbidity)?

Does Credé's method cause conjunctivitis? Neither Leopold (in 3000 cases) nor Rosthorn (in nearly 25,000 cases) ever witnessed this accident. Edgar cites Bischof's view that conjunctivitis never results if technique has been correct.

In regard to treatment, Alvarado sent

out a circular of inquiry to colleagues (oculists) in all parts of the world as to the relative merits of Credé's method on the one hand, and the substitution of protargol on the other. He received thirty-one replies, all but one in favor of Credé's. The exception was the Lyons clinic, where protargol is in use.

Ernst discusses Credé's method very briefly with reference to the conjunctivitis which it is said to cause. No gonococci are ever found in these cases. They are due therefore to the nitrate. He experimented with a 1.5-per-cent solution and still got the conjunctivitis. Finally he found that the one-per-cent solutions were non-irritant. At the Cologne Maternity, from January 1, 1902, to July 1, 1904, this author employed the one-per-cent solution in 1111 births. Not a single case of ophthalmia developed.

THE TREATMENT OF DIABETES MELLITUS.

In the *Medical Record* of September 23, 1905, STARK gives the following treatment for the symptomatic conditions present in diabetes mellitus:

In respect to the presence of excessive hunger and thirst Stark states that diabetics will indulge their appetites despite the admonitions of the physician, and it therefore becomes a necessity to resort to some expedient to relieve them of their morbid desires, which are no guides as to the requirements for food.

The sensation of thirst does not entirely reside in the throat, but may be the expression of the needs of the body for water. In the case of diabetes it is excited by the excess of sugar in the blood, which itself invokes a polyuria. Patients should be restrained from gratifying their appetites *ad libitum*, for overindulgence means overwork for kidneys and heart, which will sooner or later manifest itself in structural changes in these organs. The continual hunger is due to the fact that the ingested food is rapidly excreted without performing the functions usually ascribed to it. Among the measures that should be resorted to are the following: Sucking small pieces of ice, drinking a mouthful of water at stated intervals in order to keep the parched mucous membrane of the mouth wet, drinking small quantities of water acidulated with lemon

juice or a little bitartrate of potassium. As a good summer beverage, lime juice and Vichy without syrup may be advised; failing in these, total abstinence from carbohydrates for ten days, in conjunction with increasing doses of codeine: begin with one-third or one-fourth grain three times a day, increasing by one-third or one-fourth grain every third day, until two grains are taken three times daily, the third dose being given at bedtime to induce sleep. For the hollow feeling in the stomach, due to the craving for food, asafetida pills of one grain have been suggested, while for the intense craving for drink, saline injections into the rectum have been highly spoken of.

Emaciation accompanied by muscular weakness occurs at different periods of the disease, and in different degrees. Sometimes it is the first symptom that attracts the patient's attention to himself. It appears to correspond in severity to the degree of polyuria. This latter depends partially upon an overaction of the kidneys, which drains away the body fluids in general, and partially upon the fact that in a starch-prohibited diet the oxygen of the system burns up its own fats. This emaciation is one of fats and muscle fiber, and when once begun is generally progressive, while its persistence is a fairly accurate gauge of the gravity of the cachexia. It is a fundamental principle of therapeutics that in all wasting diseases the chief object of treatment should be to interrupt the waste of fat and to endeavor to replace the increment of loss. The success, therefore, of any method of treatment for the relief of the emaciation and weakness would reasonably be measured by the skill displayed in preventing this loss of strength and flesh. The dietetic uses of fats for growth and nutrition are so well established that it would seem to be the part of wisdom to increase body weight by judiciously resorting to fats and oils, even at the expense of neglecting the glycosuria. Therefore, in the case of a rapidly emaciating diabetic, the main indication is forced feeding of fats and oils, both in the form of natural foods and of artificial preparations.

Such pharmaceutical preparations as cod-liver oil, and the fat emulsions that are on the market, serve useful purposes and should be pushed to the limit of gas-

tric toleration. Pure cream, whole milk, yolk of egg, butter, bone-marrow, edible oils, as well as fatty meats, are all useful.

There is some difference of opinion regarding the limitations and advantages of forced feeding of fats, objection having been raised on the ground that the acetone bodies found in diabetic urine are due to an excessive assimilation of fats, but practically such a claim has little value in the face of the ready methods in vogue for the detection of the urinary acetone bodies. The condition of the stomach and intestines, however, better enables us to estimate the quality of fats that may wisely be administered; for directly a fatty diarrhea and other symptoms of intestinal disease make their appearance, we have a positive contraindication for their further use.

Of the articles enumerated, the most valuable as a reconstructive agency, and which at the same time is readily assimilated, is cod-liver oil. It furnishes the wasting system with an amount of potential energy and heat that is equivalent to the consumption of large quantities of natural foods.

Accompanying the muscular weakness we frequently find pain along the course of certain nerves, especially the sciatic nerve or one of its branches. This pain is very obstinate in character, and is symmetrical in type. It is a true peripheral neuritis. The author has found that opium alone gives little relief, but when combined with hyoscyamus—extract of opium and extract of hyoscyamus, of each one-quarter grain three times a day—better results can be looked for. Rest in the inclined position is a valuable adjuvant.

There are no specifics to ameliorate glycosuria and polyuria. Taken by themselves, fortunately, they are never a menace to life. Of drugs, the one most resorted to is opium, or one of its preparations, in increasing doses, if occasion require; its mode of action is doubtful. The presumption is that it exercises a selective affinity for the vasomotor system, dries up the secretions, and allays irritability and pain. In regard to the method of administration, it should be borne in mind that if it is going to exert a beneficial influence on the cachexia it will become apparent very soon, and before large doses are required. The

notoriously large doses advocated by some authorities, in the author's experience, are positively harmful, just as they would be in any other disease. He never goes above two grains of codeine three or four times daily, as he has found that if the disease be at all amenable to this drug it will announce itself before this maximum dose is reached. If no improvement follows such doses, its further administration should be discontinued. The same rule applies to opium and morphine; they should be given only in moderate doses, otherwise not at all.

In many cases the glycosuria has a tendency to spontaneous improvement, provided the system be not overloaded with carbohydrates. According to most observers, if a patient can tolerate 200 grammes of carbohydrates in any form, daily, his glycosuria requires no further attention. Transient improvement can usually be hoped for in the absence of intercurrent disease, unless the case be one of long standing, by means of a properly restricted diet, in conjunction with such aids as muscular exercise and suitable hygienic surroundings. In obese subjects over forty years of age, improvement of these symptoms is generally to be expected. Reference should be made here to the surprising fact that beneficial results have been observed by Mosse and Von Noorden to follow the use of measured quantities of carbohydrates, such as potatoes and oats. These investigators report that often the glycosuria and the polyuria would markedly abate after such a diet had been employed for a time and other therapeutic measures had failed.

SEDATIVES AND NARCOTICS IN THE TREATMENT OF THE INSANE.

The *Dublin Journal of Medical Science* for September, 1905, contains an article by CULLUM upon this topic. In speaking of violent forms of insanity he reminds us that there is a class among the insane who at certain periods require to be kept continually under the influence of a sedative. The author refers to cases of recurrent mania, whose periods of excitement are as regular as the changes of the moon. They are not a very numerous class, in the author's experience, and he is always able to say, out of his five hundred patients, when

each individual one of this type is due for an attack. When it does occur it is characterized by intense excitement and exaltation, an absolute disregard of personal injury, and frequently destructiveness of a most expressive kind. The attack often comes on suddenly and without warning of any kind.

For such patients the author keeps in his poison cupboard a stock mixture of the following:

R. Liq. morph. muriatis, min. 20;
Chloral hydrat., grs. 20;
Spt. chloroformi, min. 10;
Tinct. cardamomi co., min. 20;
Aquæ dest., q. s. ad f3ss.

The attack lasts, as a rule, from four to five days, during which the author gives the above dose thrice daily after food, with the most beneficial results. The attack itself is cut short, the excitement lessened to a marked degree, the patient is less dangerous to himself and others and is easily controlled.

In conclusion, he points out that, in common with all sedatives, it is of the greatest importance to watch carefully the effects of each increasing dose of opium, and above all, for obvious reasons, to make a careful examination of the urine of the patient both before and during the administration of the drug.

SCARLATINAL OTITIS.

In the *American Journal of the Medical Sciences* for September, 1905, SPRAGUE gives the following advice as to the treatment of this condition. He tells us that treatment is naturally surgical and antiseptic. We are dealing with an infectious process caused by some one or a number of varieties of micro-organisms, and this simple or mixed infection, as the case may be, must be removed as soon as possible, and the part kept as free as possible from them until healing is complete.

Some recommend preventive treatment by irrigating the nose and throat daily to keep the amount of infection reduced to a minimum. This procedure is one attended by great risk, as there is danger of washing infection through the Eustachian tube into the tympanum, and thereby setting up the inflammation one is trying to avoid. The patient should be kept in a warm room night and day,

avoiding rapid changes in the temperature, draughts, and chilling of the body after bathing. This will do much toward preventing congestion of the ear and mucous membrane of the body, for the less the circulation in these parts of the body is disturbed the less will be the danger of inflammation. When the lymphatics of the neck show signs of swelling, ice should be applied in a throat- or ear-bag and kept on constantly. Iodide of lead ointment is also useful in reducing the inflamed glands.

If spontaneous rupture of the drum-head takes place and the ear begins to discharge serum, this should be removed by pledgets of sterilized cotton and not by syringing, as any disturbance of this condition, as by an unsterile syringe or other instrument, might result in a secondary infection. When the discharge has become purulent, then it should be syringed every two or three hours, in order to keep the canal as free from pus as possible, and avoid an infection of the deeper parts and the external glands of the ear and lymphatics surrounding it.

When a case of scarlet fever is first seen by the physician, instructions should be given to the parents or nurse regarding the ear complications, and if the patient complains of pain in the ear, or manifests any discomfort in the ear by putting the hand to it or rubbing it, moving the auricle, or refusing to lie on the affected side, or if a sudden rise of temperature occurs, strict orders should be given that the attending physician be notified at once; and he should immediately examine the ears, and if any of the appearances of trouble should be present, he should at once incise the drumhead freely. If the drumhead is to be incised, the canal must first be sterilized by syringing with 1:2000 bichloride and carefully dried with sterile cotton, and a sterile instrument used. The canal should then be closed by sterilized cotton, and changed as often as it becomes saturated, great care being taken to see that the hands and instruments are clean. If the discharge becomes purulent, the canal should be syringed, and any one of the following solutions may be used: Sodium bicarbonate solution one drachm to the pint, lime-water, normal salt solution, carbolic acid 1:40; saturated solution of boric acid, or 1:500 per-

manganate of potassium solution. After cleansing, the canal should be dried with sterile cotton and a solution of boric acid in 60-per-cent alcohol instilled into the canal. In the severe cases a one-per-cent alcohol, or two-per-cent nitrate of silver, solution may be dropped into the ear, these solutions having been previously warmed.

If swelling of the mastoid lymphatics or tenderness over the mastoid region occurs, the aural ice-bag should be applied, and if relief is not had within a few hours, leeches should be applied over the tip and upper part of the mastoid bone. These measures will usually give prompt relief and often stay the progress of the inflammation. If the disease goes on to suppuration of the mastoid, operation will be necessary and should be performed without delay; yet if the indications for operation are not especially urgent, the author waits until after desquamation is complete, as in his experience if the operation is performed during desquamation, or if within six or seven weeks from the onset of the fever, the repair process is extremely slow; even after a week has elapsed following operation there will be little or no formation of new tissue in the bone cavity. The discharge from the wound is very profuse and intensely acrid, excoriating the parts wherever it touches, ulcerating the fresh-cut surfaces, and sloughing out the stitches and destroying the new healthy granulation tissue that may have formed. The large, open wound resulting from this destructive process affords an unprotected area for septic infection, and with the virulent nature of the discharge, which contains quantities of streptococci and staphylococci, the system is exposed to great danger. One of his cases developed a pronounced septicemia, unquestionably from this cause.

A word regarding the contagious nature of the discharge is not amiss. A recent hospital experience will furnish a good illustration of the care needed in handling a discharging ear immediately after the scarlet fever has had its run. There were three children representing three families who had fulfilled the demand of the board of health regarding quarantine and returned to their respective homes, each child with suppurating

ears. Within ten days after their discharge from the hospital one other child from each family was admitted with scarlet fever, and it is believed, after careful investigation, that these new cases were started by coming in contact with the discharge from the ears of the children who had just returned home. It is the belief of the author that the discharge from a scarlatinal otitis serves as a good infection carrier, and cases should be detained in an intermediate station, and from other children at least two weeks after desquamation is complete; during this period the ears should have thorough antiseptic cleansing. As a safeguard to the community he thinks it is essential to consider the discharging ears in the determination of raising quarantine in scarlet fever cases.

In conclusion, Sprague emphasizes the importance of early recognition of the ear complications of scarlet fever; we should not expect and wait for the ear to "break and run," as is so often done, for this is little short of criminal negligence, but through prompt treatment by paracentesis of the tympanum, as soon as there is the slightest indication of inflammation in the tympanic membrane or exudate in the tympanic cavity, relieve the distressing symptoms and place the patient in the safest possible condition as regards systemic infection and intracranial complications, and do all in our power to preserve the function of one of the most important organs of special sense.

SCIATICA AND ITS TREATMENT.

LESZYNSKY in the *Medical Record* of September 9, 1905, in speaking of the treatment of persistent sciatica, recalls the fact that superficial linear cauterization with the Paquelin along the course of the nerve trunk and over the sacral region is often remarkably efficacious in relieving the pain.

The continuous galvanic current has also proved serviceable in the author's hands at the end of the first week. Large electrodes should be used (4 by 6½ inches), the weight of the patient's body while in recumbency holding them in contact with the skin. One electrode is placed over the lumbosacral region and the other over the posterior surface of

the thigh, and the latter changed to the popliteal space during the course of the application by a sliding motion without removing it from the skin. The polarity is immaterial. The séance should last from ten to fifteen minutes daily, or oftener, and the current strength should be as much as the patient can tolerate with comfort. Great care should be observed that the metallic surface of the electrodes is adequately protected, otherwise painful eschars will result which take a long time to heal, and materially interfere with the continuance of electrical treatment. Galvanism is of more value, however, in the mild, subacute, or chronic cases.

Mild cases may be treated by the application of hot-water cloths, followed by massage and rectal irrigation. Such simple means will often suffice in effecting a cure. In some instances the pain may be relieved by aspirin or phenacetine. Most of the acute cases, under proper management and control, recover promptly, but with the probability of recurrence; hence systematic preventive measures should be followed for several months or longer.

In the subacute or chronic forms the treatment is somewhat different, and as a rule very little can be expected from the use of drugs excepting as adjuvants. A modified form of "rest cure" is quite essential in many cases. The occupation and habits of the patient often require radical change, particularly in people whose vocation necessitates violent and active muscular exercise of the extremities. In those whose employment requires an almost continuous sitting posture, we must not forget to instruct them to change their attitude from time to time, and to sit on a soft seat or air cushion in order to protect the nerve from pressure.

Daily massage with passive movements and regulated systematic exercises, together with occasional passive extension of the limb for the purpose of producing moderate stretching of the nerve and loosening any adhesions, are among the most reliable and efficient means at our command.

Judicious hydrotherapy in some form should never be neglected. In conjunction with the foregoing plan more cures have been accomplished by it than by any

other method, always taking into consideration the general management. The local wet pack or the Scotch douche, or both, have proved most serviceable, although other hydropathic procedures have been recommended. The wet pack applied at night is a very excellent means for relieving the pain as well as influencing favorably the neuritic process. For this purpose we may make use of one leg of a heavy pair of drawers, which is dipped in water at 65° F., and placed in position like a stocking. A roller bandage is then applied, so that the leg may be kept in a continuous perspiration all night. This is removed in the morning, and followed by a warm water ablution and massage, etc. The same procedure may be repeated during the day if necessary. After about ten or twelve packs much improvement often results.

In some chronic cases static electricity, either in the form of sparks or the static induced current, or the faradic wire brush, has proved more or less efficacious as supplementary to other treatment. Blistering over the course of the nerve by the application of cantharidal colloid is also useful, and is much more elegant than the troublesome old-fashioned fly-blister. It will suffice to mention the use of acupuncture, methyl chloride, or carbonic acid spray, and the injection of cocaine or sterilized water into the nerve trunk, all of which have had their advocates, and at times afford temporary relief from pain.

Notwithstanding its historical interest, it would be a waste of time to enumerate the multiplicity of drugs that have been utilized for "better or worse" in this disease.

A certain percentage of patients with chronic sciatic neuritis have proved unamenable to treatment, it has seemed to the author, because they have not submitted to any persistent or systematic plan, but, becoming discouraged, have resorted to desultory methods until the affliction has become intolerable. After going the rounds, and having "tried" this and that doctor, or this and that "treatment," they are anxious to have something new and radical done for their relief. Then the surgeon is asked to cut down and stretch the nerve, or to do a "bloodless stretching" by forcible extension. Unfortunately, neither of these

operations is absolutely safe, for both have been followed by myelitis, and both have usually proved inefficacious, although some temporary improvement has ensued.

In long-standing and persistent cases the author would be in favor of exploratory operation for the purpose of exposing the nerve trunk, and incising its sheath and freeing it from any surrounding adhesions. This should be followed later by the methods heretofore described.

Aside from those cases in which the sciatica is only a symptom of severe bone disease, affections of the spinal cord, or pelvic tumors, etc., the prognosis is not always to be looked upon as unfavorable. The expectation as to recovery is better in young than in old persons, and in those in fair general health than those with renal disease or diabetes. The more pronounced neuritic processes are not so rapidly amenable to treatment as the milder types, and one attack predisposes to a recurrence.

MODERN THERAPEUTICS.

In an address by O. E. ATKINSON, published in *American Medicine* of August 26, 1905, we find a number of interesting views on modern therapeutics. For example, it is the theory of the modern physician that he acknowledges the supreme remedial power of nature, and that he has learned to supplement her work and to employ himself in discovering her methods and in strengthening her hands. In those disorders which are due to the invasion of specific morbid principles, he knows that when the strength of the invaders is weak and the antidotal power of the body is strong, restoration to health will follow; when the invasion is in overwhelming extent or the antidotal power of the body is deficient, death will ensue; but he finds his battle-ground and his hope of victory whenever the contending forces are divided with some approach to equality, and when his skill and intelligence may reinforce the powers of life. To effect this he has at his command the resources of an elaborate and scientific pharmacopœia, to which he is harnessing the wonderful forces of nature, a perfected system of hygiene and dietetics; but above all, he has penetrated the living body and drawn

from it its own specific remedies and antidotes.

An illustration of the higher plane upon which modern therapeutics rests is afforded in the histories of two of its most important and beneficent discoveries, separated in time by about a century. The discovery of the efficiency of vaccination against smallpox was due to an accident, the observation of certain phenomena by a mind great enough to interpret their significance and bold enough to put the facts thus observed to practical application. Edward Jenner had the genius to realize the importance of the phenomena accidentally observed. How different has been the evolution of the antitoxin of diphtheria and such antitoxins and animal extracts as have been provided for us by the tireless and scientific laborers of our own day. From beginning to end their discoveries were the results of careful, painstaking, intelligent experiment, typifying the marvelous advance made by a century of scientific labor.

The therapist now realizes that the true laboratory for antidotes to the ravages of disease is within the bodies of those who are affected, and he is hastening to lend whatever resources he may command to render this remedial force more efficient. By experience he has been compelled to admit that antidotal influences over most diseases, as afforded by the agents of the pharmacopœia, are few, but he justly claims that with wider and deeper acquaintance with physiological and pathological processes, with clearer understanding of the seats and causes of disease, with more scientific knowledge of the action and uses of drugs, with an improved and elaborated pharmacopœia, with an improved system of hygiene and dietetics, he has vastly increased his ability to afford vital resistance to our bodies in their struggles with disease, to help and guide that internal therapeutic force. Who can doubt that the therapeutic triumphs of the future will be achieved along these lines?

Great as has been the service of therapeutics in the relief of suffering and pain, and the prolongation of life upon the basis of the pharmacopœia alone, the medical man refuses to be judged simply as a dispenser of drugs, to have his skill and ability gauged by his readiness in

administering the specific remedy for the given disease. External nature, unaided, has provided very few specific remedies. While he points to these with justifiable pride, the modern physician stands upon a broader and loftier platform. He knows that in most cases disease is to be led, not driven. He has not lost faith in the value and efficacy of drugs, but he has lost the credulity that finds antidotes to all diseases. The physician is no less the conservator of health than the healer of diseases. Whatever progress has been made in the advancement of health and in the physical well-being of mankind has been largely under his inspiration. Great as have been his victories over disease, greater still have been his achievements in devising means for its prevention. In prophylaxis he has discovered, and is discovering, means for increasing the sum of health and happiness incalculably. In the years to come his activities will be exerted more in the field of prevention than of cure. From earliest times he has taught that it is better to avoid sickness than to be able to cure it. His efforts in this direction have been persistent, intelligent, and devoted, and have been steadily rewarded. The world's heroes, for whom it reserves most of its laurels, are the shedders of blood, as destructive as pestilence. The humbler preserver of life, the physician, who has snatched from the destroyer, disease, multitudes greater than the armies slain in battle, is forgotten.

What has he done? He has placed within the reach of mankind the annihilation of many diseases; he has enabled man to live longer and happier; he has provided a means whereby smallpox may be driven from civilized life; he has discovered a remedy for diphtheria equally capable of saving the lives of those attacked and of protecting from danger of invasion; he has provided a specific remedy for those attacked by malaria, and, still better, has discovered the cause and chief manner of communication of malarial fevers; he has shown the world how to make some of the fairest portions of the earth habitable and their peoples free from the perils of malarious infection; in discovering the principal medium of transmission of yellow fever he has indicated the means whereby this pestilence may be met and overcome; he has

found out the cause of typhoid fever, of Asiatic cholera, of bubonic plague, of tuberculosis, and the most important routes by which these diseases gain admission to the body, and has shown how these devastating scourges can be overcome and banished; he has made the deadly typhus almost a tradition. These and many other victories are his, and he gives the confident promise that the human lives that have been preserved through his efforts already are few as compared with those to be preserved in the years to come.

ANAL FISSURE.

Palliative Treatment.—In uncomplicated cases, usually of short duration, where the ulcer is shallow and the sphincters have not yet become hypertrophied and spasmodic, a palliative course of treatment should always be tried, and in the large majority of cases will effect a cure. The bowels should be regulated by careful attention to diet, aided by the nightly injection of an ounce of olive oil, to be retained until morning, which aside from its local beneficial action will secure a soft motion. Next in importance to the regulation of the bowels is that strict cleanliness should be maintained by bathing the anus night and morning and after each defecation with hot water. The parts should afterward be dried with a sterilized piece of gauze, and a pad of the same material placed over the anus and kept in position with a T-bandage.

Nitrate of silver, either as the pure stick or solutions of various strengths, has long been a favorite application in anal fissure, yet its routine use will often be disappointing. It acts by destroying the unhealthy granulations and the exposed nerve endings, as well as affording a protective by the formation of an albuminate of silver. Pure ichthyol applied to the fissure with a cotton swab two or three times a week is much better in most cases than nitrate of silver. It seems to act like a charm in allaying the painful symptoms, and often a few applications will prove sufficient.

When using either nitrate of silver or ichthyol, it is wise to previously anesthetize the fissure by an application of a strong solution of cocaine. When dis-

charging these patients, they should be warned that if their constipation is not attended to and the parts are not kept clean, they are very liable to have a return of the trouble.

Operative Treatment.—In all complicated cases, and in all cases not responding readily to the palliative treatment, where there is much hypertrophy and spasm of the external sphincter, an operation is indicated. The operative procedures are stretching of the sphincters under general anesthesia, or the complete or partial division of the external sphincter under local anesthesia. It is the writer's opinion that all cases are not cured by the stretching operation or by a partial division, but that a single complete division of the external sphincter will effect a cure of any fissure, whether single or multiple, or whatever its location.—HILL, in the *Boston Medical and Surgical Journal*, July 13, 1905.

THE EFFICACY OF SERUM TREATMENT IN STREPTOCOCCUS PUERPERAL SEPTICEMIA.

YOUNG contributes to the *Boston Medical and Surgical Journal* of August 24, 1905, an excellent résumé of this subject.

The article by Bumm, to which frequent reference has been made, seems to the author the most judicial and judicious discussion of the subject which he has seen, and he can do no better than to state his conclusions:

There exists to-day no serum which exerts any clinically proven influence upon the pathological processes in the tissues which are the result of the spread of the streptococcus from its original point of entrance; and the employment of anti-streptococcus serum when a general peritonitis of puerperal origin, a pyemia, a parametritic phlegmon, etc., exist, is ineffectual and useless. He believes that undoubtedly whenever this organism has not extended beyond the endometrium, or is circulating in small numbers in the blood-stream, without metastatic lesions, the serum aids in overcoming the infection; that after severe operations and foul uterine discharges its prophylactic use is to be recommended; that large doses are necessary, repeated every two or three days; that the earlier it is injected the better the results. This is a fair and im-

partial statement of what we may expect to-day from the serum treatment of streptococcus puerperal sepsis.

A FURTHER CONTRIBUTION TO THE TREATMENT OF TYPHOID BACIL- LURIA WITH UROTROPIN.

In concluding a paper on this subject in the *Boston Medical and Surgical Journal* of August 17, 1905, EASTON uses these words:

1. Although urotropin may, in very rare cases, cause uncomfortable symptoms, this does not invalidate the use of the drug.

2. Urotropin is of least value in cases where an active inflammation of the bladder has occurred.

3. But, as far as this series of observations goes, the moderate use of urotropin throughout the disease prevents cystitis.

4. Finally, the routine administration of the drug in all cases of typhoid fever would seem to be strongly indicated, for by such a course of treatment bladder complications are avoided, the urine made innocuous to those brought in contact with the patient, and it is possible to discharge patients who have been sick with typhoid fever in full belief that, as far as the urine is concerned, they will be harmless to the community.

THE TREATMENT OF INDUSTRIAL MER- CURIAL POISONING.

The treatment WALKER advises in the *Lancet* of September 16, 1905, is prophylactic as well as active. Only healthy and temperate men with sound teeth should be employed in the work, which should be carried on in a well-ventilated room, illuminated by daylight. Only eight hours' work a day should be allowed, no man being permitted to work overtime. Water, soap, towels, and nail-brushes should be provided, and the men advised to wash before leaving work. A good plan is to let the men off five minutes earlier. Nails and hair should be kept short, and any cuts or sores on body, hands, or limbs should be immediately covered up. Overalls and caps should be worn, and where possible gloves. Outdoor coats should be kept in another room. No meals should be eaten in the

workroom. In the winter when the men are working with closed windows it is a good plan to have doors and windows opened during the dinner hour. Every man should wash his teeth night and morning with a tooth-brush. Due attention to the teeth the author thinks is most important, as he has never seen a case of mercurial poisoning unless the teeth were decayed or dirty. He gives a mouth-wash of five grains of alum, five grains of chlorate of potash, half a drachm of glycerin, and water to one ounce, to be used two or three times a day when the gums are soft and inflamed. For general condition the patient should stop work in mercury, get as much fresh air as possible, and never fatigue himself bodily or mentally. By this treatment the nervous system is greatly benefited. Light and nourishing diet is essential for the patient's gastric disturbance. The bowels should be kept open by cascara sagrada, licorice, aloes, etc. Potassium iodide is said to be a specific, but so far the author has had very indifferent results with it. He has found patients benefited by five grains of bromide of potassium, five minims of tincture of digitalis, three minims of solution of strychnine, with water to one ounce; one ounce of this mixture is to be taken three times a day.

THE INFLUENCE OF SACCHARIN ON THE DIGESTIVE ENZYMES.

MATHEWS and MCGUIGAN contribute to the *Journal of the American Medical Association* of September 16, 1905, an important research on this subject. As is well known saccharin is used in medicine solely on account of its sweetening properties. It has a retarding influence on the action of the digestive juice, especially that of the saliva and pancreas. Its prolonged use would, therefore, tend to produce digestive disorders. When injected into the circulation of an animal it produces depression and stupor, followed by labored respiration similar to asphyxia. This is evidently due to its inhibitory action on the enzymes in the blood and also in the tissues in general. This action very probably accounts for the headache and other symptoms which follow its use. Like many of the other benzol compounds, it may be considered a general protoplasmic poison, in that it

inhibits nearly all the fermentative processes of the body. Consequently it interferes with and decreases the general body metabolism.

SURGICAL TREATMENT OF UNDESCENDED TESTES.

ECHOLS (*Wisconsin Medical Journal*, August, 1905) ends a full discussion of the subject of cryptorchism by certain observations upon the treatment. There is no unanimity of opinion as to the most favorable age for operation nor as to the technique. One should consider the age, whether unilateral or bilateral, whether pain or psychical symptoms are present, presence of complications, position and degree of atrophy of the undescended testes. The non-operative treatment consists in massage and manipulation with a view to bringing the organ into the scrotum, or a truss above the gland to force and hold it down. The operations are orchidopexy, orchidectomy, or replacement of the testis within the abdomen. As age advances the prospect for spontaneous descent grows less and less. Hope that the testicle will descend without treatment should not constitute a strong reason for delay. Complications, such as hernia, torsion of the cord, or malignancy, demand operation regardless of age, except perhaps hernia in early childhood. Excision of the testis is rarely justifiable except for malignancy or gangrene from torsion of the cord. A testis should not be removed simply because it is small, because, if placed in the scrotum and fixed there, it may develop to the normal state. An undescended testicle found in operating for inguinal hernia need seldom be sacrificed. It is probably better to replace it within the abdomen than to sacrifice it. Some prefer this course to orchidopexy, though American, German, and French surgeons consider orchidopexy the operation of choice for the majority of cases.

Practically all cryptorchids, if seen before puberty, should be operated upon whether symptoms referable to the deformity are present or not. This conclusion seems justifiable when we consider (a) that a potential if not an actual hernia is always present; (b) that hernial strangulation and torsion of the spermatic cord are

strongly predisposed to by this condition; (c) that an inguinal testis is peculiarly liable to trauma from external violence and from muscular exertion; (d) that imperfectly descended testes appear to be affected by malignant neoplasms oftener than when in their normal habitat in the scrotum; (e) that psychical disturbances in the patient may arise later; (f) that, even should operation fail to lead to further development of the gland, it will usually do no harm by way of disturbance of function, for it has been shown that practically all misplaced testes lack the spermatogenic function anyhow, and (g) that many able surgeons tell us that their results in these cases have been such as to warrant the foregoing conclusion.

The most favorable age for operation is from five or six to twelve years. After puberty the hope of improving the function and development of the testis by operation is very slight.

Orchidopexy, or fixing the testis in the scrotum, is the operation of choice. Removal of one testis is rarely justifiable, and castration never, unless the gravest complications demand it.

Echols believes that many of the reports of cases appearing in the literature are worse than worthless because the ultimate results of operation have not been observed with sufficient care.

AFTER-TREATMENT OF ABDOMINAL OPERATION CASES.

MOULLIN (*Clinical Journal*, Sept. 6, 1905) discusses the general principles of this treatment. The first thing to be done is to guard against shock. The author has had 200 cases in his wards within a year, and it has been only rarely that the temperature of one of these has dropped more than half a degree. This is due to the rapidity with which the operation is performed, the slight loss of blood which is allowed, and the maintenance of the temperature by keeping everything around the patient warm both during and after the operation. Another cause of shock which is avoided is dragging upon or dividing nerves during operation more than is needful. Remedies for the treatment of shock should be ready for use, and even used before they are needed, so as to prevent the condition

for which they are designed as a remedy. Lowering the head is of great value both in a preventive and a remedial way. Unless there is some definite contraindication the foot of the bed should be raised eighteen inches to two feet, as this keeps the nervous system better supplied with blood and prevents thrombosis of the veins of the lower extremities. Nearly all of the author's patients get just before they come into the theater a rectal injection of eight or ten ounces of strong coffee and two ounces of brandy. As soon as under the anesthetic 1/30 grain of strychnine and, if the pulse suggests it, 1/100 grain of digitalin is given hypodermically. This should not be repeated more than once. If the operation is upon the upper part of the digestive tract a pint or more of hot peptonized beef tea with some brandy may be injected directly into the bowel or the stomach. At the end of the operation it is the rule to give a large rectal injection at a temperature of 107° to 108°. This keeps up body temperature and relieves thirst. It can be repeated in three hours.

If the response is not prompt the only thing of value is saline transfusion, either intravenous or subcutaneous. The former method is to be used where the symptoms are urgent from the first, or where there has been great loss of blood. Subcutaneous transfusion is free from most of the dangers of intravenous transfusion. As much as six or eight pints may be given this way in twelve hours without any bad results. Saline transfusion, if prolonged, should be accompanied by oxygen inhalations. In patients who are depressed mentally by the fear of death from operation, or in those whose nerve tone has been lowered by a long period of suffering, morphine is the best agent, as it brings about sleep.

Another immediate danger is that form of collapse characterized by shrinkage of the tissues, as after a severe diarrhea. The tissues are drained of blood, and the blood-pressure has fallen very low. The condition is brought about by the purging and fasting preparatory to operation as well as loss of blood during operation. Patients are apt to suffer in this way after operation upon the stomach. This condition is best met by saline infusion.

Feeding by the mouth should be re-

sumed as soon as possible. This may be done as soon as vomiting from the anesthetic has stopped, even after operation upon the stomach. In some cases food can be introduced at the time of the operation. The quantity should be small, beginning with not more than an ounce. Begin with something agreeable, as hot tea or iced champagne. One of the most important things is early action of the bowels. This frequently relieves alarming symptoms. The purgative always used by the author is calomel. Besides being a purgative it is a good intestinal antiseptic. Five grains should be given the evening of the day following the operation, and five grains early the next morning. Two hours after the second dose a large enema of soap and water with a tablespoonful of turpentine and the yolk of an egg should be given. If this does not act a second injection is given a few hours later; and if this also fails, drachm doses of sulphate of soda and sulphate of magnesia are given every two hours until there is some result; or preferably castor oil may be given.

CYSTOSCOPY BY AIR.

It is difficult to describe the instrument of CATHELIN (*Annales des maladies des organes génito-urinaires*, Aug. 15, 1905) without reproducing his illustrations.

The advantage of the instrument lies in the fact that vision is direct and not by means of a reflector or mirror, and that the distortion resulting from looking through water is avoided, as well as the obscurity from cystitis or hemorrhage clouding the water. The straight cystoscopes have various disadvantages, especially in the male.

The instrument consists of a metal catheter curved to a right angle at the tip, below which is placed a minute incandescent lamp. The entire convex wall of the curve is wanting and is replaced during introduction by a spring which can be withdrawn. Air is forced into the tube and the urine withdrawn by openings in the wall of the catheter, and other openings are provided for the introduction of ureteral catheters. The posterior end of the catheter is closed with glass to prevent the collapse of the bladder. The entire posterior wall may be studied by moving the tube.

RESECTION OF THE STOMACH—TECHNIQUE OF IMPLANTATION OF DUODENUM.

The principal variation from the typical Kocher operation in the method of SCHULTZE (*Deutsche Zeitschrift für Chirurgie*, Band lxxviii, Heft 1) is the implantation of the duodenum in the stomach before closing the latter. After the pylorus has been resected, the duodenum and stomach being closed by clamps some distance from the ends, a buttonhole is made in the posterior wall of the stomach parallel to its free margin. Through this opening the free end of the duodenum is drawn and fastened inside by a series of sutures in the mucous membrane and muscularis. The free end of the stomach is then closed, and the peritoneal covering of the stomach and duodenum closed carefully. The operation is made more rapid and easy by means of special forceps.

A PECULIAR FORM OF STENOSIS OF THE LARGE INTESTINE.

The tendency of the splenic flexure of the colon to adhesive peritonitis is emphasized by PAYR (*Archiv für klinische Chirurgie*, Band lxxvii, Heft 3), who states that as a result of almost any acute abdominal inflammation, even appendicitis, there may be a chronic inflammation binding together the approximated parts of the transverse and descending colon, leading to an appearance like that of a double-barreled gun, and to an acute angle at the flexure. The symptoms somewhat resemble those of cancer of the colon, but constipation and chronic obstruction are more prominent and attacks are more regular. The attacks are characterized by extreme pain, relieved somewhat by reclining, and by obstipation followed by passage of stinking fluid. Attacks are brought on by eating solid food. Examination shows a distended abdomen with tenderness and resistance in the left upper quadrant. Relief may be obtained by an enema with the patient in the genu-pectoral position, which permits the passage of vast quantities of gas and feces. The condition as seen at operation is quite unmistakable, the transverse colon passing across to the middle instead of the upper end of the descending colon.

PURULENT MENINGITIS—RESULTS OF TREPHINING.

Good results are reported by KUMMEL (*Archiv für klinische Chirurgie*, Bd. lxxvii, Heft 4) from trephining in cases of generalized purulent meningitis, in which lumbar puncture shows purulent fluid and mental symptoms are extremely grave. The mental condition is immediately improved, and recovery often results in cases in which it seemed impossible. The operation has been performed frequently for meningitis following otitis media, and more rarely after fracture of the base of the skull. Kümmel cites six such cases from the literature, and adds two of his own, in one of which recovery followed extensive resection of the skull, although lumbar puncture had obtained pus.

ROENTGEN RAY PICTURES IN PLASTER CASTS.

In cases of congenital dislocation of the hip, KLAPP (*Centralblatt für Chirurgie*, No. 37, Sept. 16, 1905) applies a flat piece of board over the hip and leaves the central part of it uncovered by plaster bandage, in order to take an x-ray picture of the joint after reposition, to make sure of the presence of the head of the femur in the acetabulum. The method has no disadvantages as far as the patient is concerned.

**THE VIABILITY OF ISOLATED EPI-
THELIUM.**

Attempts to determine the length of time that strips of epithelium could be preserved before they lost the power of implantation are described by BURKHARDT (*Deutsche Zeitschrift für Chirurgie*, Band lxxix, Heft 3). He removed pieces of skin from the size of a dime to that of a quarter from the thighs of dogs, previously shaved and cleansed, and preserved them both dry and in a damp chamber for variable periods. They were then implanted on the muscle of a dog between the shoulders, and pieces removed after three and five days for study.

The pieces were hard to remove on account of the stiff hairs, and hard to keep in position on account of muscular contractions; and conditions were therefore very unfavorable. He found that pieces preserved one day were as viable

as when entirely fresh, and that pieces preserved a greater length of time were very irregular. In many experiments only two pieces, kept more than four days, lived, and these were kept eight and twelve days respectively. Better results could certainly be obtained in quieter and less hairy animals, and the result of Wentscher, who succeeded after twenty-two days, is probably not wrong.

EXOPHTHALMIC GOITRE—PERMANENT RESULTS OF THYROIDECTOMY.

The present condition of twenty patients who were operated on more than five years ago is reported by FRIEDHEIM (*Archiv für klinische Chirurgie*, Band lxxvii, Heft 4). One case died from tetany after operation, the remainder being all improved. Sixteen may be considered cured; two are able to work and have no marked disturbances; one only shows a tendency to relapse, although the present condition is not nearly so severe as that before operation.

**REMOVAL OF A LARGE PIN FROM THE LOWER LOBE OF THE LUNG BY
TRANSPLEURAL PNEUMOTOMY.**

RUSSELL and FOX (*Lancet*, Sept. 9, 1905) present the report of a unique operation for removal of a foreign body from the lung. The patient, aged twelve years, was admitted to the hospital in September, 1903. Five weeks previously a large, black-headed shawl-pin had accidentally slipped down the trachea. A week later cough, and later still bloody expectoration, set in. Fox found by the radioscope that the pin was in the left bronchus two and one-half inches below the bifurcation; subsequently it was found to have migrated further down. The symptoms were slight, and auscultation revealed nothing.

After some experiments upon the cadaver by way of preparation the operation was undertaken. The patient was placed upon the right side and a flap raised. A portion of the left eighth rib six inches long was removed from the posterolateral aspect of the chest, and air was allowed to enter the pleural cavity through a small puncture. The pleura was then opened the full length of the

wound. The fingers of the left hand were then passed between the lung and the diaphragm, the lower lobe grasped near its root and drawn toward the opening. The position of the pin was ascertained by gentle palpation with the right hand. A small incision was made in the lung over the pin's head; a sinus forceps, unopened, was pushed in until the pin was felt, and by hitching the instrument under the neck of the pin the head was easily lifted out of the wound and the pin withdrawn. There was no hemorrhage, but an abscess had begun to form around the head of the pin. No suture was put into the lung. The flap of skin was replaced and sutured except about two inches in the middle, over which portion oiled silk dressings were applied and a dressing put on. In this way free escape of air from the pleura was insured while entrance of air was discouraged. Some pneumonic consolidation took place, as did some suppuration around the incision, but no suppurative took place in the pleura. In twelve days the patient was able to leave the hospital perfectly well.

THREE CASES OF TUMOR OF THE
SPINAL CORD OPERATED ON WITH
GOOD RESULT.

WARREN (*American Medicine*, Aug. 26, 1905) reports satisfactory results from operation in three cases of tumor of the spinal cord, two of which were extramedullary and the other intramedullary.

The first case was that of a woman aged fifty who had suffered for over a year with severe attacks of pain in the region of the left side, abdomen, and groin. Later in the disease there were added pains of the left leg, inability to walk or stand, impairment of sensibility in the distribution of the lumbar nerves, and partial loss of control of the bladder. Laminectomy was done in the region of the eighth, ninth, and tenth dorsal vertebrae, the dura incised, and a fibroma the size of an almond removed from the pia mater. It is seven years since the operation, and although convalescence was much prolonged, recovery is now complete.

The second case was a young married woman. For about two years she had

suffered from pain in the left side. Six months before operation she noticed numbness of the toes of both feet and the left foot was dragged somewhat. For a few days prior to operation there was pain in the back and inability to walk. Laminectomy was done at the level of the seventh, eighth, and ninth dorsal vertebrae. At the eighth vertebra there was found a psammoma which was the width of the canal and three-fourths of an inch long. Convalescence was rapid, and in six months the patient was well.

The third case was a man of forty-nine, who for twenty-five years had shown symptoms of spinal cord disease. For the past sixteen years he had symptoms of a total transverse lesion. Laminectomy had been done fourteen years ago by Keen without relief of the paralysis. For a number of years the patient had suffered from severe pain in the neck, shoulders, arms, and back. This pain was at times almost intolerable. Laminectomy was done, and the cord found to be the seat of an endothelioma. Although it is over seven years since the operation there has been no recurrence of pain, other distressing symptoms have disappeared, and the patient has taken up many of his former duties as an architect.

RESECTION OF THE SPLENIC FLEXURE
OF THE COLON FOR MALIGNANT
DISEASE.

OLMSTED (*Canadian Practitioner and Review*, September, 1905) reports the case of a woman whose illness began suddenly in January, 1902, in the form of cramp in the abdomen, nausea, and vomiting. The pains were most marked in the left hypochondriac region; there was abdominal distention and constipation. For two years following she had frequent similar attacks. Relief always came with a movement of the bowels, the stools always containing some blood. During an attack in January, 1904, a lump about the size of a walnut was felt in the left side of the abdomen between the last rib and the ilium; later this was found to be the size of a small orange. Operation was done in March, 1904. On making the incision the tumor was found to be in the upper part of the descending colon and attached to the inner part of the transverse colon, the splenic flexure being free.

There were some adhesions. The parts of the intestine involved, including the splenic flexure, were clamped with Kocher's intestinal clamps and removed. The two divided ends were brought together, and an end-to-end anastomosis was made by means of sutures over a large Robson bone bobbin. Three rows of sutures of fine black silk were used in making the anastomosis, and the omentum was stitched over the junction line. There was very little shock following the operation, convalescence was without incident, and in three weeks the patient returned home. She has gained in health and weight ever since. The tumor was found to be a cylindrical-celled carcinoma.

TREATMENT OF PAINFUL AND DEFORMED FEET.

CLARKE (*Clinical Journal*, Aug. 30, 1905) discusses at length the causation and treatment of painful and deformed feet. "Ingrowing" toe-nail is the result of some constitutional disease, coupled with improperly fitting stockings and shoes. If ulceration is seen at the edges of the nail a lotion of carbolic acid 1 to 50 should be applied. If pain continues after healing has occurred, the avoidance of lateral pressure should be persisted in and good hygiene should be kept up. If discomfort continues, dissect out the bed of the nail after having removed the nail itself. Then take a skin-graft from the thigh and apply it to the site from which the nail was removed. Cover the graft with a pad of dry sterile gauze and apply a bandage. Allow this to remain from eight days to two weeks, when healing will have occurred. The foot is kept on a splint for a week after the operation, and the toe is protected for two weeks longer. It is useless to simply remove the nail, as the trouble invariably recurs.

Painful corns are often the result of impairment of the general health, which renders the feet more susceptible to the pressure of the shoe. In treatment the pressure should be removed and the general health built up. If these measures do not suffice, make an incision around the corn and remove all its epidermal part and some of the fibrous layer beneath it, also sever the branch of nerve just above it. Then put on a skin-graft. In eight or nine days healing will be complete.

VENTROSUSPENSION OF THE UTERUS.

HAY (*Canadian Practitioner and Review*, September, 1905) sets forth in detail the views of different authorities upon the various methods of operating for retrodeviations of the uterus, and sums up as follows:

That the conscientious, resourceful operator will be bound by no rule, but will aim to suit the operation to the particular case in hand. If for any reason the posterior cul-de-sac has been opened, an attempt should be made to correct a retrodisplacement by one of the methods which fix the cervix well back in the hollow of the sacrum—Pryor's, for example.

That Alexander's operation should be the operation of choice in all uncomplicated cases; that complications are the rule, consequently this method is very limited in its field of application.

That ventral suspension—not fixation—when properly performed in combination with other procedures, does relieve the malposition, and prevents more surely than any other method a recurrence of the same. Its dangers are small, if any, in subsequent pregnancy and delivery. It has the advantage of being quickly and easily performed, and is applicable in all cases where any other method is, and in very many cases it is the only method that offers a reasonable hope of permanent cure.

RESUSCITATION BY MANIPULATION OF THE HEART.

CONKLING (*New York and Philadelphia Medical Journal*, Sept. 2, 1905) reports the case of a man who had received a gash across the chest with a razor. The patient was in shock when first seen, and was given twenty ounces of saline solution by hypodermoclysis and injections of strychnine and nitroglycerin. In a short time some improvement was noted, and an attempt at repair was made under partial anesthetization with ether. The wound began at the junction of the outer and middle third of the clavicle on the left side, and extended downward and to the right to a point 4 inches below the right nipple. The muscles were entirely divided, as was the left third rib at its cartilaginous junction, while the second and fourth ribs were almost divided. Suture of the

wound from either end toward the center was proceeded with, and while the opening at the center was being packed with gauze, it was noted that the patient was in a bad state. He was given cardiac stimulants by the subcutis, and artificial respiration was started, but to no avail, and the man had apparently died. The index-finger of the operator was passed in through the wound and the heart felt to be perfectly still. The heart was then seized between the thumb and forefinger and manipulated for forty to sixty seconds, when a slight thrill was felt. Action of the heart was slowly reestablished, and soon a pulse was felt. The opening was then packed, and the patient put to bed and given saline solution and stimulants. Recovery was uneventful, and in four weeks the wound was filled with granulations.

The author estimates that the heart had ceased to beat at least two minutes before massage was started. Two months have elapsed since the injury, and the patient is well and expects to go to work soon.

FRACTURE OF PATELLA—METHODS OF TREATMENT.

Two articles by THIEM and OCHLECHER respectively (*Archiv für klinische Chirurgie*, Band lxxvii, Heft 3) may be considered together, as they put forth the same view. After a review of the literature Thiem shows that the mortality of cases operated on is no higher than that of those not cut. Cases not operated on generally do not get full use of the limb, cannot kneel, and have difficulty in going up-stairs or up-hill. Only those cases in which there is no separation of the fragments give good results. Cases treated by suture generally have complete return of function, and only require half as long on the average for union to occur. All cases in which the fragments are at all separated should be operated on at once.

Ochlecher discusses the pathological condition, and shows that operation gives better results than other methods. Where the fragments can be brought into perfect apposition the circular subcutaneous suture around the patella is perhaps satisfactory, but generally the bone should be exposed and united by silver wires passed through holes bored from the an-

terior surface near the break and coming out on the back part of the fractured surface, so that the joint is not entered. The ligaments are sewed with catgut.

To get perfect function it is necessary to begin use of the joint early and to force exercise in spite of pain and stiffness. Massage and passive motion begin eight to ten days after operation, and walking in three weeks.

PROLAPSE OF THE RECTUM—PATHOGENESIS AND TREATMENT.

After discussing various theories and operations, HOFMANN (*Centralblatt für Chirurgie*, Sept. 2, 1905) shows that the rectum is supported by the muscles of the perineum, especially the levator and sphincter ani, and not by internal attachments. Treatment should, therefore, be directed to the strengthening and support of the perineal floor, and he proposes the following operation to effect this purpose:

An H-shaped incision is made in the perineum, embracing the rectum in the anterior part of the H and the tip of the coccyx in the posterior. The rectum is separated from the structures behind it to a depth of two inches, and the cavity thus produced is elongated anteroposteriorly by drawing the rectum and anus forward and closed from the bottom, so as to make a straight wound running anteroposteriorly from the coccyx to the rectum. In this way the transverse muscles supporting the rectal floor are shortened without any sacrifice of tissue. Rest in bed for three weeks after operation is advisable.

The method has been used in several cases with good results.

ACUTE PHLEGMONS OF THE HAND.

KANAVEL (*Surgery, Gynecology, and Obstetrics*, September, 1905) presents a careful study of this subject, and concludes with some expressions as to treatment. This is both prophylactic and active. All wounds should be given aseptic care and drainage instituted before infection has a chance to spread. While waiting to see if a localized abscess is present or not a hot, moist dressing together with immobilization is the best treatment.

If an abscess is in the subcutis of the

dorsum, palm, or thenar or hypothenar eminence, a large incision is generally sufficient. If the middle palmar, thenar, or subaponeurotic space is involved, special consideration is necessary. The opening of the middle palmar space is a grave responsibility. Any method of opening this space exposes certain tissues to injury. The best plan is to establish through-and-through drainage. The incision is best made at the site where the middle palmar crease crosses the metacarpal space between the middle and the ring finger. A cut is made through the palmar aponeurosis, and an artery forceps thrust through to the dorsum. Then a perforated rubber drainage-tube is inserted.

If the thenar area is involved, the indications for radical operation are absolute, as the dangers of delay are very great, and the consequences of opening the space, even though uninfected, are not serious. As through-and-through drainage is safe, efficient, and followed by no complications and but few sequelæ, it should be selected. The palmar incision should lie to the ulnar side of the muscular mass of the thenar eminence, and the drainage channel should open on the dorsum at about the level of the metacarpophalangeal joint of the thumb, midway between the two metacarpals.

If the subaponeurotic space be involved, the incision should lie over the interosseous space, because the tendons of all except the little finger lie over the metacarpal bones. If the infection has spread up under the annular ligament to the forearm the pus will lie beneath the tendons of the flexor profundus and upon the pronator quadratus. The best method of opening this abscess would be to go laterally, just anterior to the radius about three inches from the wrist. After making the skin incision, an artery forceps is pushed through the deep tissue, going between the flexor profundus tendons and the bone. One incision may do, or through-and-through drainage may be instituted, coming out just above the ulna. The drainage-tube will lie posterior to the radial and ulnar arteries and the nerves, and these structures will not be in danger of pressure necrosis.

After any of these procedures the usual hot, moist dressings are employed until assurance is had that the spread of

the process has ceased, when they should be discontinued, since the continued dilatation of the vessels caused by them leads to increasing edema. Elevation and immobilization are of value. When danger of spread through muscular action is past, active and passive motion should be encouraged to reduce the edema and prevent adhesions. If there are persistent adhesions the patient should at intervals be anesthetized with nitrous oxide and the adhesions broken up.

ACTIVITY OF TESTICLES—DETERMINATION BY PUNCTURE.

Before performing any of the operations for azoöspemia, POSNER (*Berliner klinische Wochenschrift*, Aug. 28, 1905) recommends that the testicle be punctured with a Pravaz syringe and a drop of testicular fluid withdrawn and examined for the presence of spermatozoa. Even where these are healthy they are generally small and immobile, but their presence shows that the gland is functioning properly and that an anastomosis is likely to be effective.

THE TREATMENT OF WOUNDS TO SECURE RAPID EPITHELIAL COVERING.

JUDD (*Post-Graduate*, September, 1905) says that in case of burns or lacerated wounds the first stage of ether or chloroform anesthesia or gas anesthesia should be induced in order to thoroughly cleanse the wound. If much grease is present in the wound, gasoline is used to remove it. Then the part is washed with green soap and a fairly stiff brush. When hairy parts are involved, sulphur-starch compounds are applied thickly, and by this means in several minutes all hair will be removed. These compounds are not irritating and do not interfere with the growth of hair, yet remove it more thoroughly than a razor does. In case of burns where bullæ are present, these are taken away completely and the wound is washed with normal saline solution.

Over the surface of the wound thus prepared is spread sterilized peritoneum of the ox (cargile membrane), which is cut into strips so that it exactly fits the denuded surface. This applies itself

closely to the surface and relieves the pain in burns as does nothing else. A moist dressing of almost any weak antiseptic is applied and frequently changed. The cargile membrane will stay in place when the dressing is changed, yet it allows the discharges to pass through and needs no changing. In case of burns, after the inflammatory reaction has subsided, only the membrane with a piece of gauze over it is needed. In case of wounds with loss of substance various stimulants must be used until the granulations have reached the level of the surrounding surface.

When dealing with varicose and other forms of ulcers little can be done to promote epithelial growth unless the circulation of the part be regulated, as the skin is thin, illy-nourished, and easily broken down. After the cause has been removed and a good bed of granulations is produced by equalizing the blood-supply and stimulation with balsam and other drugs, there are several methods of rapidly covering the surface with epithelium. The best of these is by Thiersch's skin-grafting. The method is modified by the use of cargile membrane over the grafts. Another method is to sprinkle over the surface bits of epithelium scraped from the deeper layers of a corn. The author has used a soft x-ray tube at a distance of eight to ten inches for a period of five to ten minutes twice a week over the Thiersch or other forms of graft with astonishingly good results.

REMOVAL OF A GRAIN OF CORN FROM THE RIGHT BRONCHUS.

DUNN (*Virginia Medical Semi-Monthly*, Sept. 8, 1905) reports the case of a child who accidentally inspired a grain of corn into the bronchus. Under partial chloroform anesthesia low tracheotomy was done, after which the child was held head downward and a probe passed into the trachea as far as the bifurcation. This caused violent coughing, but the grain was not expelled. A bronchoscopic tube of a Jackson bronchoscope was then passed into the trachea, and after removal of the blood and mucus with cotton the grain of corn could be plainly seen occluding the right bronchus. The lamp was removed and the grain seized in the forceps at the first

attempt. As it was too large to pass through the tube, the latter was withdrawn along with the forceps containing the corn. The patient reacted well.

INFECTED WOUNDS—BALSAM OF PERU LOCALLY.

The antiseptic and healing properties of Peru balsam are highly praised by SCHLOFFER (*Archiv für klinische Chirurgie*, Bd. lxxvii, Heft 3), who made a series of experiments on mice, injecting it subcutaneously after injection of pathogenic bacilli. Ordinarily it prevented infection even from anthrax. It has no bad effect on the wound surface and does not kill cells with which it comes in contact. Restoration of function in wounds of tendon sheaths and joints treated by free injection of the balsam was especially striking. One case of amputation of the rectum, in which the wound was filled with tampons soaked in the balsam, healed without pus. Injections cause no leucocytosis. It is still uncertain to which of its constituents the good effect is due.

RELAXATION OF THE UTERUS DURING CURETTAGE.

The discussion on temporary paralysis of the uterus has called forth an article by GUSSENBRÖCK (*Centralblatt für Gynäkologie*, Aug. 26, 1905), who states that usually the uterus relaxes at the beginning of curettage, although he is not sure whether this is due to dilatation of the cervix or to the curettage itself. The soft feeling which was supposed to be due to mucous membrane is due to this relaxation, and the hard, grating sensation, formerly thought to show that the musculature had been reached, is due to the subsequent contraction of the uterine vessels. In some cases the relaxation is so extreme that the distance to which the curette sinks suggests perforation, and the author reports several such cases, in one of which the sound entered to a depth of 15 centimeters. He warns against mistaking this condition for perforation and interrupting operations unnecessarily, and against the danger of making a perforation in the relaxed wall, which will harden in a few minutes if the operator pauses.

SPINAL ANESTHESIA WITH STOVAINE.

The usual method of injection is used by TILMAN (*Berliner klinische Wochenschrift*, Aug. 21, 1905), who reports forty-two cases in which it was used. He prefers it to general anesthesia in all operations below the waist, except in very nervous persons and for laparotomies. The usual dose was 0.06 (less than 1 grain). Operations on the rectum and male genitals, as well as on the legs, are easily performed, as anesthesia lasts for one to two hours. In one case with sciatica in which an operation for hydrocele was performed the neuralgia did not return after operation, and Tilman treated four other cases in the same way, stretching the nerve by extension of the knee and flexion of the hip several times during the anesthesia. In each case relief was permanent. There were no serious results. Headache lasting several days is frequent unless the head is kept raised during and after operation. Irregularity of the heart was seen once and retention of urine twice.

GENU RECURVATUM—NEW OPERATION.

This deformity is said by DEUTSCHLAUDER (*Centralblatt für Chirurgie*, Sept. 9, 1905) to be due to a change in the shape or direction of the articular surface at the lower end of the femur. The anterior portion of this should be in a horizontal plane at right angles to the axis of the bone, but in genu recurvatum it curves beyond this plane and the anterior part bends upward. The deformity is caused by the tendency of the tibia to slip forward on this upward curving surface. The trouble may be corrected either by shortening the tendons of the hamstring muscles and thus limiting the forward motion of the tibia, or by performing an osteotomy on the lower end of the femur and bending the joint surface backward until its anterior part is again in the horizontal plane.

The latter method was used by the author, who cut the femur through from the front just above the condyles in a plane backward and downward parallel to the anterior part of the articular surface. A small bridge of bone was left posteriorly and the end of the femur forced backward, leaving a triangular

open space. The leg was put in a plaster cast for three weeks, and afterward massage and exercises continued for a month. Roentgen rays showed that the wedge-shaped space in the femur was entirely filled by new bone. The final result was perfect and has now lasted two years.

THE TREATMENT OF IMPOTENCE.

Enlargement of the prostate is, according to TERREPEON (*St. Petersburger Medicinische Wochenschrift*, No. 36, Sept. 10, 1905), the physical basis of most cases, and his article is almost limited to a consideration of the means of relieving this. The greatest relief is obtained from the psychrophora, this being used for an increasing length of time and with a decreasing temperature of water at frequent intervals. The time is at first five minutes, and is gradually increased to twenty-five minutes. The water is reduced in temperature until near the freezing-point. It is important that urine should not be passed soon after treatment. If the prostate is very hard it is best to use hot water followed by massage, and later to use the cold. When the prostate is reduced, assistance may be had from the use of drugs, mainly strychnine, phosphorus, cannabis, cornutin, and among the best yohimbin. Psychic influence is of the greatest assistance also.

TUBERCULAR ARTHRITIS—EARLY TREATMENT.

Injections are preferred by VINCE (*Annales de Chirurgie et d'Orthopédie*, No. 7, July, 1905), who recommends operative procedure only after the failure of conservative measures. The best treatment consists in the injection into the articulation of a solution of camphor-naphthol, iodoform, and creosote in olive oil. The strength and amount must be suited to the case. The joint is immobilized, and the injection repeated every five or six days for eight to ten weeks. The joint is then put in a permanent fixation splint for six months, when ankylosis is generally complete and there is no return of inflammation. If the bone is much involved a series of injections of 2 drops each of a 10-per-cent solution of zinc chloride around the entire joint,

one centimeter apart, and into the periosteum may be given at one sitting, two days before the first oil injection, or a canal may be drilled in the epiphysis and pure carbolic injected and washed out with alcohol. Two hundred and sixteen cases treated by the zinc chloride method resulted in cure in each case, but with ankylosis in all but forty-five cases, these being mostly in the upper limb.

PASSIVE CONGESTION (BIER) FOR GONORRHEAL ARTHRITIS.

Unsatisfactory results are noted by HIRSCH (*Berliner klinische Wochenschrift*, No. 39, Sept. 25, 1905), who reports twenty-five cases treated in this way, in sixteen of which more than one joint was affected. Ten were completely cured. Five showed slight deformity or loss of mobility. One retained a very stiff joint, and the remainder left improved before treatment was completed. The duration of treatment was no shorter than by other methods, nor were the terminal results better. The advantages of the method are its convenience and cleanliness and the prompt relief of pain from its use.

RECTOURETHRAL FISTULA FOLLOWING PROSTATECTOMY.

The difficulty of cure in these cases is emphasized by ROCHET (*Annales des maladies des organes génito-urinaires*, Sept. 15, 1905), who had several such cases, due either to a small wound of the rectum unnoticed at the time of operation, or to necrosis of the rectal wall during cicatrization. Attempts to relieve the condition by suturing the rectal and urethral orifices having failed, the author finally developed the following technique:

An incision is made in the perineum corresponding to that of operation, and the rectum and urethra are separated carefully to a distance more than half an inch above the orifice. The separation is difficult as the loose areolar tissue has been replaced by fibrous scar tissue, and great care is required to avoid wounding either canal in a new place. The fistula being exposed in this way the rectal orifice is closed, and a tampon introduced to hold the urethra and rectum apart. This must be renewed whenever soiled.

In this way Rochet succeeded in holding the walls apart until closure of the orifices had occurred, and permanent cure resulted in each case.

SUPRAPUBIC CYSTOSTOMY BEFORE PROSTATECTOMY.

In cases in which the condition of the bladder and of the general system is so poor that prostatectomy may be dangerous, ANDRE (*Annales des maladies des organes génito-urinaires*, Sept. 1, 1905) recommends the performance of suprapubic cystostomy and drainage, and treatment of the cystitis until the conditions are good enough to warrant the performance of a more serious operation.

He reports three cases in which excision of the prostate was performed at intervals of from two months to two years. Prostatectomy was done by the perineal route, with good result in each case.

URETEROURETERAL ANASTOMOSIS.

As the results of anastomosis between the ureter and rectum are not satisfactory, BEMASCONI and COLOMBINO (*Annales des Maladies des organes génito-urinaires*, Sept. 15, 1905) made a series of experiments to determine whether anastomosis between the ureters could not be performed in those cases in which it was necessary to cut a ureter at a point too high to allow anastomosis into the bladder.

A series of experiments on dogs and on the human cadaver convinced them that the operation was practicable, and they developed the following technique:

The abdomen is generally opened for some other purpose, e.g., the removal of a tumor which involves the lower part of one ureter. The operation being completed the posterior abdominal wall is exposed by drawing the descending colon to the left and the other viscera to the right, and an incision is made in the posterior parietal peritoneum in the middle line. The peritoneum is then separated from the abdominal wall in both directions until the ureters are reached. The wounded ureter is then freed from all adhesions, which may present some difficulty, but does not interfere with its nutrition, and is drawn obliquely across

the middle line and placed parallel to the other ureter. The lower end has of course been previously severed and ligated. The ureters are closed above by hemostats protected with rubber, and are stitched together by a single suture above and below the point of anastomosis, which should be lateral and about half an inch long. The anterior wall of each ureter is then incised completely for a distance of half an inch, and a continuous catgut suture involving the mucous membrane and muscularis is begun at the lower end and carried to the upper corner and back along the other edge, uniting the edges of the two incisions firmly to one another. It only remains to repair the peritoneum with catgut whenever necessary, and to remove the hemostats. Drainage is not required.

END RESULTS IN SURGERY OF THE
KIDNEY BASED ON NINETY CASES.

VANDER VEER (*New York and Philadelphia Medical Journal*, Aug. 27 and Sept. 2, 1905) reports upon 90 cases with 123 operations for various lesions of the kidney, and makes the following observations:

In a review of the cases presented in this paper one is impressed with the very excellent results following the operation of fixation of the kidney. In the hands of all operators the mortality list is exceedingly small. Wearing of a bandage, with the kidney pad, is irksome to many patients, who gladly consent to surgical intervention, when the prospects of recovery are so good.

The combined operation of nephrotomy and nephrectomy for abscess of the kidney is appropriate for such cases as will not bear too long an operation, and where there may be a large kidney, made up of multiple abscesses in such a way as to make manipulation of the organ very difficult. Simple drainage, however, benefits the patient for a time, and often causes a diminution of the mass to be removed later. In the purely cystic form of kidney, a true pyonephrosis, an immediate nephrectomy is proper in the majority of cases. In removing a large sacculated kidney much time is saved by introducing the fingers or hand inside the sac, drawing out, and in this manner easily separating attachments. It must

be borne in mind that following a nephrotomy or nephrostomy a very fair number of cases recover without further intervention.

In a large pus kidney, especially with multiple abscesses, there is always some danger of nephrectomy causing an infective peritonitis.

In cases of a movable or floating kidney, giving such marked symptoms that the surgeon is often led to believe that he has a stone to deal with, we must admit our diagnoses are very far from correct, and the cases here reported were disappointing by reason of not finding a calculus present. It is sometimes difficult to diagnose between a neuralgic kidney and one containing a calculus in its pelvis. Splitting of the capsule relieves pain in cases that can be classified only as a nephralgic condition.

It is yet a mooted question as to how much can be accomplished by resection of the kidney for relief of abscesses and growths.

The cases of tuberculosis reported indicate decidedly the importance of an early operation, and give a most encouraging outlook for these patients regarding permanent recovery, for it is seldom both kidneys are diseased.

In incipient tuberculosis of the kidney we have much to accomplish in making the examination of the urine more positive in detecting the bacillus of tuberculosis. Laboratory work thus far has not aided the writer much.

Malignant growths give us our mortality list, and yet there is much hope for these cases if reached early.

Surgery of the kidney is becoming more and more exact with the splendid advances made in methods of examination of the pelvis and urine, as to the possibility of one kidney being diseased or absent.

As to the use of ligatures or clamps, if the pedicle is exceedingly short and difficult to ligate clamps are advisable. They are easily applied, and as used in the cases reported the results were excellent. There was no hemorrhage on removal at the end of forty-eight or seventy-two hours, and the patients convalesced rapidly. When using ligatures the writer is reluctant to dispense with fine silk.

The cases of hydronephrosis yielding

to aspiration are of interest; the possibility of such a result in these simple cases should always be borne in mind, and the treatment attempted.

One cannot overlook the fact that the proportion of diseased kidneys is much greater on the right than on the left side, and much greater in females than in males.

Reviews.

OPHTHALMIC NEURO-MYOLOGY. A Study of the Normal and Abnormal Actions of the Ocular Muscles from the Brain Side of the Question. By George C. Savage, M.D. Published by the Author and printed by Keelin-Williams Co., Nashville, Tenn., 1905.

The theories and conclusions, amplified and illustrated, upon which the text of this book depends are stated in the preface by the author as follows: "There are eight conjugate brain centers in the cortex by means of which the several versions are effected, and one conjugate center by which convergence is caused. These conjugate centers act alike on orthophoric and heterophoric eyes and when there is only one eye. Each of these is connected with two muscles, and the work done by the center and its muscles, under the guidance of volition, is normal work. The conjugate centers have no causal relationship with the heterophoric conditions, nor have they any power of correcting them." The illustrations, original with the author, appear in the text in appropriate places, and they illuminate the subject better than more complex ones could. The inclusion of other centers and their functions would prove confusing. The author's ideas are clearly expressed and logically thought out to their conclusions. The only criticism that the reviewer feels might be made is that the novice, in the study of that most intricate problem of the relation of the functions of the ocular muscles to the brain, might be misled by the very simplicity of the explanations and the diagrams. While it is true that the muscles work in pairs it must not be forgotten that all the muscles of both eyes are involved in every action, some by contracting, others by relaxing, and that this combined and opposite function means participation by centers in the brain, and, moreover, that the re-

lation of centers and muscles must be normally maintained that the individual may have perfect binocular fixation.

The author is to be congratulated on having written an interesting, original, and valuable contribution to the subject of the innervation and associated function of the ocular muscles, and on the attractive style in which his ideas have been presented.

H. F. H.

COLOR VISION AND COLOR BLINDNESS. By J. Ellis Jennings, M.D. Second Edition. F. A. Davis, Publishers, Philadelphia, 1905.

Dr. Jennings in the second edition of his well known brochure presents a valuable and comprehensive manual for railroad surgeons, the medical profession, and the lay expert, often an official of the railway and marine companies.

The study of color blindness became of great practical significance through the efforts of Holmgren, who advocated in 1875 the Young-Helmholtz theory of color perception. He induced the government of Sweden to enforce the tests of color blindness among the employees of all railroads of that country. His efforts have been ably seconded by others in the same field in America, notably Jeffreys and Williams of Boston, and Thomson of Philadelphia.

Since that year the necessity of determining the presence of the defects of vision, including acuity, form, and color sense, and of testing the hearing, has become recognized as a requirement of employees by most of the railroad companies of the United States and foreign countries. Not only are men examined who apply for positions and are otherwise capable, but reexamination, after an interval of some years, is a growing custom.

The purpose of this work is to impress upon the minds of all railroad managers the importance of making the tests painstaking and complete, and thereby eliminating a great source of danger to the traveling public. This seems after careful reading by the reviewer to have been admirably accomplished.

It is distinctly a "practical work on color blindness containing all that is necessary to a perfect understanding of the subject," and written in a clear, direct, and convincing style.

To the railroad surgeon it is invaluable, and to the non-expert interesting and instructive, and the reviewer takes pleasure in recommending it to the perusal of every one interested in the subject.

H. F. H.

THE COMMONER DISEASES OF THE EYE. By Casey A. Wood, C.M., M.D., D.C.L., and Thomas A. Woodruff, M.D., C.M., L.R.C.P., London. Second Edition. Chicago: C. P. Engelhard & Co., 1904.

The first and second editions of this work of 500 pages were both issued in the same year. The early exhaustion of the first edition is the highest commendation the book could receive. That there is real need for comprehensive, practical, and concise text-books there can be no doubt. The study of diseases of the eye is made easy and simple when the description of the usual form of disease is not buried under technical terms, or lost in the long list of affections that might be included under the title of ophthalmology. Such is the aim of this book, and a careful perusal of its pages demonstrates that the object has been attained in a manner extremely satisfactory to the reviewer. The treatment of the various subjects is in accord with the first paragraph of the preface: "It shall consider ophthalmology from the standpoint of the physician in general practice. It is proposed, mainly by describing only the commoner diseases of the eye (never using a technical term when a simpler word is available), by numerous illustrations, synopsis headings, and a complete reference index, to popularize a study that is too often considered difficult and unprofitable." Sample selections from the pages, if quoted here, would show that the book fully merits the high praise already accorded the first edition. The reviewer has no adverse criticisms of the text, illustrations, proof-reading, or style and appearance of the volume, and strongly recommends it to students of ophthalmology. H. F. H.

A TREATISE ON NERVOUS DISEASES OF CHILDREN FOR PHYSICIANS AND STUDENTS. By B. Sachs, M.D. Second Edition, Revised. William Wood & Co., New York, 1905.

When the first edition of Dr. Sachs's now celebrated book upon diseases of the nervous system in children appeared a number of years ago, it at once took a

very high rank in medical literature. Its value is so great that it has been translated into the German, Italian, and French languages, and its text is so largely quoted by systematic writers that it may be considered almost a classic in the department of medicine with which it deals. In the present edition Dr. Sachs has saved space by omitting those chapters on the anatomy and physiology of the nervous system which can be found in other works of a more general character, and he has also, with the same object in view, excluded detailed histories of cases. Notwithstanding this effort on the part of the author to save space, we find in a number of instances that he uses case histories whenever he wishes to give a clear clinical description of cases of severe disease affecting the central nervous system in children, and we agree with him that as a rule this is a very satisfactory way of making clear to the reader the clinical course of a malady. The writer of this notice has for many years referred to Dr. Sachs's first edition with much interest and profit, and an examination of the second edition shows that it is even better qualified than the first to aid those who wish to make a study of this interesting group of patients.

CHEMICAL AND MICROSCOPICAL DIAGNOSIS. By Francis Carter Wood, M.D. With One Hundred and Eighty-eight Illustrations in the Text and Nine Colored Plates. New York and London: D. Appleton & Co., 1905.

The constant appearance of new and valuable works treating largely of diagnosis by laboratory methods sufficiently controverts those who would ignore this form of inquiry. Since Cagney made available the admirable work of v. Jaksch the growing need for such publications has been met by the highly acceptable volumes of Simon, Boston, and others. Dr. Wood's book is divided into nine parts, dealing with the blood, gastric contents, feces, oral and nasal secretions, sputum, urine, transudates and exudates, and milk. An appendix of twenty pages considers the preparation of staining fluids, reagents, and apparatus. One hundred and twenty-three pages of the book are devoted to a consideration of the urine. Cyodiagnosis, inoscopy and cryoscopy—recent additions to laboratory methods—are de-

scribed with some detail, although there may be some question as to the confidence to be placed in the positive statements concerning the deductions that may be drawn from some of these tests. The descriptions given are usually clear and detailed, and the directions for making tests are sufficiently exhaustive.

Occasional indefiniteness may embarrass the inexperienced, for whom the book is evidently intended: thus, for examining material supposed to contain the fungus of *Oidiomycosis cutis* the author recommends a "dilute potassium hydrate solution." References are given in foot-notes, quotations being almost exclusively to recent literature. As a rule the illustrations are good and the reproductions acceptable. The attempts at color reproduction are above the average, and the photomicrographs equal to those usually found in such works. That this method of illustrating, however, is inadequate is shown by the pictures of the pneumococcus and gonococcus. The book is printed on heavy paper, unduly bulky, but possesses clear typography and is well bound. The volume will undoubtedly meet with general approval and deserves commendation.

W. M. L. C.

PRACTICAL MESSAGE IN TWENTY LESSONS. By H. Nissen. Illustrated. The F. A. Davis Company, Philadelphia, 1905.

This small octavo volume of less than 200 pages fairly well fulfils the function described in its title. Doubtless many physicians who have not the opportunity to employ skilled masseurs will be glad to have it for the purpose of instructing their assistants or of obtaining points for themselves. It is not, however, as complete a work upon massage as a number of others upon the market. The outline illustrations are perhaps more valuable than the text in describing what is to be done.

A MANUAL OF DISEASES OF THE NOSE AND THROAT. By Cornelius G. Coakley, A.M., M.D. Third Edition, Revised and Enlarged. Copiously Illustrated. Lea Brothers & Co., Philadelphia and New York, 1905.

As indicated in its title, this book does not profess to be an exhaustive volume upon the subjects of which it treats. It is distinctly a manual, and yet its size is sufficient to provide the practitioner with

complete information in regard to those diseases of the nose and throat which even the specialist may be called upon to manage. The illustrations are much better than usual in works of this character, and the text is so prepared that the information derived from it is readily applied in practical work. If any of our readers are looking for a small volume upon diseases of the nose and throat, they cannot do better than purchase this one.

A LABORATORY MANUAL OF PHYSIOLOGY. By F. C. Busch, B.S., M.D. Illustrated. William Wood & Co., New York, 1905.

The object of the author in preparing this little manual is to give an outline of experimental physiology for the guidance of students. He does not describe the apparatus which is needed, as a rule, believing that it can be usually prepared by the instructor or the student himself for specific experiments. Doubtless in the hands of its author the book will prove of very great value to the students who may be fortunate enough to be under his tutelage, but we do not believe that it will prove popular with other teachers of physiology, chiefly because they are already accustomed to employ books which are more complete and better known.

INTERNATIONAL CLINICS OF ILLUSTRATED CLINICAL LECTURES AND ORIGINAL ARTICLES. Edited by A. O. J. Kelly, A.M., M.D. Volume III. The J. B. Lippincott Co., Philadelphia and London, 1905.

We have so often referred in terms of praise to the previous editions of this volume that our readers must not think that our somewhat unfavorable criticisms in this instance are directed against the whole series. It seems to us, however, that the present volume is scarcely up to the standard of its predecessors. Of course, the editor cannot be considered responsible for the statements of his contributors, but we think he might have excluded with advantage an article upon the toxic use of alcohol in which a number of cases are cited which certainly do not prove the correctness of the author's position. Thus, a case is quoted of a clergyman of thirty years of age, strong and athletic, with no history of disease, who was bitten by a snake and treated with large quantities of cider brandy un-

til he became profoundly intoxicated. He remained in bed for a week, during which time he was treated with more brandy. Then he recovered. Six months later he was treated for rheumatism, nervous exhaustion, brain fatigue, and profound dyspepsia. A year afterward he developed nephritis, with persistent anemia and insomnia. Two years later he died from cerebral hemorrhage. The statement is made that the snake-bite was that of a harmless snake, and the subsequent disease is thought by the author to be due to the action of the spirits. It seems to us a far cry between the cider brandy and the cause of death.

An article upon carbonic acid gas as an application in rhinitis covers less than seven pages, nearly five pages of which are taken up with the history of the employment of carbonic acid gas in the treatment of disease. So brief a description is given of the clinical methods of its application that we doubt if any one could institute this plan of treatment after reading the article. On the other hand, a valuable paper upon ethyl chloride as a general anesthetic is contributed by Thomas D. Luke, who gives an interesting historical summary of our knowledge concerning this comparatively new anesthetic.

THE PRINCIPLES OF BACTERIOLOGY. A Practical Manual for Students and Physicians. By A. C. Abbott, M.D. Seventh Edition, Enlarged and Revised. Lea Brothers & Co., Philadelphia and New York, 1905.

In the space of fourteen years Dr. Abbott's text-book has passed through seven editions, an extraordinary record for a volume dealing with such a technical subject, proving not only that the profession is thoroughly alive to the importance of these lines of investigation, but also that Dr. Abbott has been able to present his information upon the subject in a manner which is useful and attractive. The present volume has, of course, been brought up to date, and can be as cordially recommended as its predecessors.

A DISSECTING MANUAL BASED ON CUNNINGHAM'S ANATOMY. By W. H. Rockwell, Jr., M.D. William Wood & Co., New York, 1905.

This is a book of 306 pages, well described in its title, and intended for dis-

secting-room use. The body is divided into the five "parts" of the dissecting-room, and each of these "parts" has been subdivided as much as possible with regard to the avoidance of excessive repetition. The spinal cord has been described under the heading of the cranial cavity, because it seemed best to include it with the brain. As the book is based on Cunningham's Anatomy, bracketed numerals at the end of each paragraph have been introduced which refer to corresponding pages in the last edition of that book. Doubtless students of Cunningham's Anatomy will find this "key" of very considerable value.

A PRACTICAL TREATISE ON SEXUAL DISORDERS OF THE MALE AND FEMALE. By Robert W. Taylor, A.M., M.D. Third Edition, Thoroughly Revised. Illustrated. Lea Bros. & Co., New York and Philadelphia, 1905.

The wide experience and profound erudition which characterize all of Taylor's writings on genito-urinary topics is nowhere more conspicuously and satisfactorily evident than in this his last book. The topic, a difficult and delicate one to handle, has been covered most admirably and completely. Here will be found assembled practically all that is known of the conditions leading to impotence and sterility, and, moreover, from the vast mass of therapeutic literature published on the treatment of these disorders, has been chosen by one best suited to make this choice all that is really of service. The book is admirably illustrated, and is likely to form a part of the busy practitioner's working library.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.D., F.R.C.P.

Perhaps Shakespeare was right when he said that there never yet was a philosopher who could endure the toothache patiently. But if the philosopher had attended the recent meeting of the British Medical Association at Leicester, he might have found much interest, if not comfort, in the imposing list of disorders and diseases to which toothache may point or to which it may give rise. A

on previous occasions, I can only summarize here such points as seem to have most practical interest. Dr. Risien Russell spoke of the possibility of hysterical toothache, and recalling a case in which a patient suffered amputation of a leg for hysteria, he thought that the neurotic might not shrink from the extraction of a tooth to satisfy their morbid cravings for sympathy. Obviously it is scarcely possible in some cases to distinguish such a manifestation of hysteria from genuine toothache; and the converse mistake is also possible, as in a case to which Dr. Russell referred, in which a neurotic man, whose sufferings had been attributed to neurasthenia, hypochondriasis, etc., was eventually discovered to have sarcoma of the upper jaw, a sufficiently serious cause for complaint of toothache. Another condition in which the teeth are often blamed wrongly, and unfortunately extracted wholesale in some cases, is "tic-douloureux." Paroxysms of pain occur suddenly in some part of the face, and are often supposed to be due to some carious tooth; but tooth after tooth is extracted, and still the pain recurs as badly as ever. In such cases there is only one treatment that is effectual, namely, removal of the Gasserian ganglion; other measures, such as division of branches of the nerve, or excision of portions of it, give only transient relief. Of medicinal measures, free administration of gelsemium seems to be the most useful. Occasionally syphilis causes severe pain referred to the teeth, and mercurial treatment may relieve the pain which dental interference has entirely failed to cure.

Various speakers referred to the remoteness of the pain from the dental source in many cases: for instance, pain seemingly in the internal ear may be due to dental causes, and the teeth affected are then always lower molars; and from these back teeth of the lower jaw also arises a pain radiating down to the shoulder and arm, and sometimes benumbing the arm and hand. A severe recurrent pain in the back of the occipital region on one side was stopped at once by killing the pulp of the second upper molar on the same side, although there had been no toothache; acute pain in one nipple was cured by killing the pulp of a lower back tooth on the same side. Much commoner is the sensation of pain in a sound tooth,

when it is really due to caries in some other tooth, usually the corresponding tooth in the other jaw of the same side.

Very interesting examples were quoted of reflex results from dental or dentitional irritation. Paroxysmal cough in infants may be due to the irritation of swollen gums, and instances were given in which the eruption of a tooth, or lancing of the gums, had at once stopped the cough. As we all know, "cutting the teeth with bronchitis or diarrhea" is a frequent complaint according to mothers, and while some speakers were skeptical as to the connection, the majority seemed to regard the teething as indirectly, if not directly, responsible. Febrile states interfere with the secretion of digestive juices; dentition gives rise to fever; therefore indirectly teething gives rise to digestive disturbance with diarrhea, and perhaps convulsions. A febrile state also renders the child more liable to bronchitis from any of the ordinary causes. By some such assumption speakers attempted to account for the undoubted association of dentition with such disorders; but these views hardly rest on any more solid basis than that propounded to account for the occurrence of otitis media during dentition. Reflex nerve irritation, it was stated, renders tissues less resistant than normal, and perhaps interferes with reparative processes, so that microbic infection of the ear easily occurs, and, having occurred, the inflammatory process is less easily stayed. This view, which supposes a sort of disturbance of trophic influence by reflex nerve irritation during the teething, is certainly supported by the exacerbations of eczema which are apt to occur in infants during dentition as each tooth is coming through the gum; and if the French view, mentioned by one speaker, that alopecia areata may be due to reflex disturbance from the teeth, be correct, this also would support the idea of neurotrophic disturbance in some of the ailments which are so often associated with dentition in infancy.

During the next fortnight the various medical schools of London reassemble for the winter session, and miles of platitudes will be talked at introductory addresses; already a long list of inaugural orations is advertised, and like sugar-candy after medicine, the October dinner follows the address.

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Original Communications.

THE TREATMENT OF SHOCK, WITH SPECIAL REFERENCE TO THE USE OF STRYCHNINE—A SYMPOSIUM.

W. W. KEEN, M.D., LL.D.,

Professor of the Principles of Surgery and Clinical Surgery in the Jefferson Medical College of Philadelphia.

As to the value of strychnine in the treatment of shock, I feel a good deal of hesitancy in expressing an opinion. I have used it in many cases, and I have thought it of value, but if I were asked whether this opinion was based on accurate scientific observations, I should hesitate to answer yes. Neither the surgeon nor the anesthetist has time or op-

portunity to make exact observations. The experimental method, in which attention is given exclusively to the effects of any drug—danger to the life of the animal not being a disturbing factor—is far superior in accuracy to the clinical, though the final test must always be actual use in human beings.

I believed that strychnine did good until I saw the experimental evidence adduced by Crile that adrenalin and salt solution were much better means of combating shock than strychnine, which in fact, so far as experimental evidence on animals is concerned, he rather proved to be detrimental.

I have practically given up the use of strychnine since seeing his researches, and substituted adrenalin for it. So far

as the clinical observations go, the results have been satisfactory, but the same criticism applies to this conclusion as to the former one. The adrenalin, as he points out, should be used continuously.

E. E. MONTGOMERY, M.D.,

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Shock is a profound physical relaxation or loss of control due to disturbance of the vasomotor system. This disturbance may arise from loss of blood, from emotion, the influence of the anesthetic, and other causes unknown. It is a danger which confronts every surgeon, and one which may occur when most unexpected. It is characterized by cerebral anemia, a feeling of nausea, a sense of weakness, depression, and discomfort at the epigastrium, as if life was over. This feeling of faintness may pass to unconsciousness. Its approach may be gradual, or sudden or unexpected, and not at all commensurate with the apparent gravity of the case. In this condition, as in many others, the personal equation proves an important factor. Generally, its approach may be heralded by pallor, profuse perspiration, coldness of the surface, dilating pupil, the pulse becoming soft, compressible, increasing in frequency, and disappearing over the radial artery. The respiration is shallow, feeble, and infrequent. When the patient is not under an anesthetic she will be sighing, moaning, turning the head from side to side, have an anxious expression, complain of dimness of vision, or even loss of sight. In rare cases the development of the condition will be almost like a stroke of lightning. Some years ago when operating upon a young woman for chronic pelvic inflammation, in whom I had anticipated a favorable prognosis, while tearing up an adherent ovary and tube from the retro-uterine pouch the respiration and heart action suddenly stopped, and in spite of every measure which we could institute life became extinct. Prior to this she had been breathing normally, with no disturbance of the pulse to indicate danger. Here the disturbing cause was attributed to the effect upon the sympathetic ganglia of the pelvis in breaking up the dense adhesions. Hemorrhage had not been a factor, as there had been no loss of blood.

The treatment of shock must be preventive and direct. Our present methods of preparation for, and conduct of, operative work are directed to the prevention of this condition. Moderate but not drastic purgation, preliminary rest in bed, regulation of diet, prevention of decomposition in the intestinal tract and the consequent avoidance of the effect of intestinal toxins, the administration of water in large quantities, and the oversight and where necessary stimulation of the circulation will lessen the danger from and frequency of shock. The very nervous patient, who seriously dreads the operation, whose hands are cold and clammy, can be placed in better nerve state by the administration of tr. strophanthi gtt. x three or four times daily for the forty-eight hours preceding. In feeble heart action, strychnine gr. 1/30 may be given hypodermically twice or thrice daily with advantage.

While I believe that operation under scopolamine and morphine in place of other anesthesia will be found more dangerous than under general anesthesia, I am satisfied that the hypodermic injection of scopolamine gr. 1/100 and morphine gr. 1/6, one-half to three-quarters of an hour prior to the anesthetic, is of decided advantage. The former braces up the blood-vessels and prevents blood stasis; the latter quiets the nerves, renders the patient less solicitous, and requires considerably less of the anesthetic agent. Another important factor is speedy performance of the operation. Every detail should have been carefully thought out, every precaution made, the assistants thoroughly drilled, and no time lost from the time the anesthetic is begun. Hesitation and deliberation are as much out of place in an operation as at a fire. To attain the highest success the surgeon must be prepared for every emergency, and meet each unexpected incident as a part of the normal procedure.

During the operation shock may be obviated by prompt control of hemorrhage, protection of the patient from cold, keeping the intestines within the abdomen, and when necessary to bring them out, keep them covered with hot towels moistened in normal salt solution. If the operation is prolonged the hot salt solution should be continually poured over the exposed intestines. The head of the patient

should be kept low, and bodily heat maintained by hot blankets. When shock occurs, it is important that the central engine should be whipped up, and this is best or most quickly accomplished by a hypodermic injection of strychnine. Absorption of the agent under such circumstances is slow, so that it is well to give a dose for effect, from gr. 1/20 to gr. 1/5 according to the effect required. Small doses or frequently repeated doses are less effective than a good-sized one. The increased power in the propelling agent alone is not sufficient, for the condition of the vessels must also be considered, and so strengthened and reinforced that the patient will not die by bleeding into her own vessels. Such a condition is evident from the pallor and coldness of the surface, and the leaky condition of the skin, and can be most effectually met by a hypodermic injection of atropine sulphate gr. 1/130 to gr. 1/100. The quantity of blood in the vessels also plays an important part. Shock from loss of blood can be improved by elevating the foot of the bed, rendering it easier for the blood to reach and sustain the brain centers, and by bandaging the limbs so that the reduced quantity shall temporarily be made effective. The quantity can be increased by rectal enemata of warm salt solution, or the use of the same by hypodermoclysis or intravenous injection. In profound shock the latter should always be employed. From one to three pints of a one-per-cent solution of sodium chloride, to which a drachm of 1-to-1000 solution of adrenalin chloride has been added, should be slowly run into the vein. In severe cases we have not only to arrest shock before it becomes fatal, but must carefully husband the vital spark subsequently. From past experience I am convinced this may be extinguished by doing too much. Repeated doses of strychnine may prove the too severe blast which extinguishes the flame we would enkindle.

I do not believe strychnine the best drug for continued use, as with increasing power of absorption an accumulative action occurs which results in the death of the patient from the drug rather than from the condition for which it was given. After the preliminary dose of the strychnine better results can be secured from the administration of some preparation

of aseptic ergot. This drug increases the power of the involuntary muscular fiber and thus does good, both in the propelling center and in the course of the blood currents. It can be used at repeated intervals without the danger of lethal effects. Next to intravenous injection of salt solution I have learned to rely upon ergot as the most effective agent in shock.

EDWARD MARTIN, M.D.,
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Although all conditions of profound systemic depression immediately following either accidental or optional injuries are characterized by a group of symptoms to which has been given the name shock, Crile and others have shown on the basis of physiological research that aside from hemorrhage or direct trauma to nerve centers, or cellular degeneration incident to an overdose of anesthetic, or of idiosyncrasy in regard to it, there is a condition distinct in itself, caused by a profound impression upon the sensory nerves, resulting in paresis of the vasomotor centers, and characterized by a fall of blood-pressure, which in turn results in accumulation of the blood in the veins, and is characterized by a rapid, weak heart action, a blanched, cold surface, and the associated symptoms of vomiting, restlessness, or stupor, subnormal temperature, and failing respiration. In its proper application the term shock should be limited to this form of vital depression.

The therapeutics of shock proper and of postoperative conditions characterized by a similar train of symptoms should begin with prevention. This implies in surgical practice the best vitality obtainable under the conditions, and a normal functioning of the organs of elimination. It is in the preliminary preparation of the patient for operation that strychnine as a pure tonic finds its main application. During this period the intestines should be well cleared, and particularly in the preparation for intra-abdominal operation fermentation should be guarded against by the administration of an intestinal antiseptic, perhaps the best being betanaphthol bismuth in 5-grain doses four times daily.

The condition of the kidneys is of car-

dinal importance, and free elimination through them should be encouraged by water given as freely as compatible with perfect digestion. This may be supplemented by such drugs as are indicated by special pathological conditions of the circulation, though as a rule they are not indicated.

One of the most important means of preventing vital depression before and after operation lies in the employment of a skilled anesthetist. As a rule postoperative difficulties are in inverse proportion to the experience of the assistant who administers ether or chloroform.

The administration of morphine and atropine hypodermically fifteen minutes before the beginning of anesthesia is sometimes desirable in persons who are of a neurotic type, or those who are sodden with alcohol. As a rule it should be omitted.

Immediately before anesthesia the spraying of the nose and throat with one-per-cent cocaine in 1:10,000 adrenalin chloride in normal salt solution is of distinct service in lessening or entirely doing away with the primary discomfort and laryngeal irritation incident to the first few inhalations, and preventing the accumulation of mucus in the throat.

The minute attention now paid to the prompt checking of bleeding and the avoidance of rough handling of tissues are in great part responsible for the comparatively good condition in which patients now leave the table after prolonged operation. In intraperitoneal procedures rough sponging and large exposures of the viscera for long periods of time are particularly likely to be followed by shock if the operation be a tedious one. This is now universally avoided by the careful placing of the sponges at the beginning of operation, by means of which the operative area is walled off from the abdominal cavity, and when possible, as in cases of intestinal suture, bringing the area to be operated from within the abdominal cavity and protecting the remainder of the viscera by sponges wrung out of hot normal salt solution.

If during the course of the operation there is a dangerous fall of blood-pressure not attended by severe hemorrhage, as shown by weak and rapid pulse, the procedure which promises to be of most service in restoring blood-pressure is that

proposed by Crile, and perhaps most effectively applied by his inflatable rubber suit. This being absent the same end may be attained by swathing the extremities and the lower abdomen in cotton, and then enveloping them in elastic bandages.

On the completion of the operation, if the pulse remains 144 or over for more than an hour the condition is one of grave danger, and should be met by elevation of the foot of the bed and by distal pressure applied either by Crile's rubber suit or by cotton and bandages. If there has been no bleeding, or so little as to have played no part in the condition of shock, neither hypodermoclysis nor intravenous injection is likely to be of service excepting as a means of favoring elimination. This end may be accomplished as well, though perhaps not so rapidly, by rectal enemata, which should be employed in any event after operation to stimulate kidney function, which is always impaired after anesthesia. The rectal enemata are given by means of a fountain syringe with a drop of not more than one foot through a catheter. The solution employed is normal saline, which is allowed to flow in very slowly at body temperature, the purpose being absorption. These enemata are repeated every two or three hours.

As to the use of drugs, Reichert's experiments seem to show that cocaine is the only one likely to be of any service, and even this in the case of profound vasomotor depression is of questionable value, since idiosyncrasy is particularly well marked in regard to this medicament. Strychnine, at one time widely popular, is rapidly falling into disuse. The same may be said of atropine, of digitalis, of whiskey, of ammonia, of camphorated oil, and of all the various drugs with which patients in this condition have been in the past treated. Pure shock is caused by trauma. It seems scarcely reasonable to suppose that it will be bettered by further trauma. To him who doubts the effect produced on the sensory nerves by repeated hypodermic injections of digitalis or alcohol, for instance, a single injection tried upon himself is likely to prove convincing. Moreover there is evidence to show that an commonly employed ulating effect upon c-

centers. Aside from the trauma he would perhaps receive a fifth, perhaps a third, of a grain of strychnine, five grains of caffeine, one to two drachms of tincture of digitalis, perhaps the same quantity of aromatic spirits of ammonia, and if he expressed noisily the pain he experienced, from an eighth to a half grain of morphine. Neither would his vitality be heightened nor his joy in living be increased. Indeed, were he of the hypersensitive type common enough in the profession he would probably exhibit an interesting condition of combined shock and polymorphous poisoning.

The same criticism may be directed against hypodermoclysis. In the treatment of pure shock it is of little service. It may, however, be indicated for the purpose of encouraging elimination, and should then be driven into the cellular tissues so slowly that it is absorbed almost as rapidly as it flows from the end of the puncturing needle. It is still a common occurrence to find a patient suffering from profound shock with the whole body surface punctured with hypodermics and two or more huge skin bosses indicating the areas into which normal salt has been driven rapidly under strong pressure. Although the condition of vital depression is such that consciousness to pain is often blunted, there is no reason to suppose that the latter does not produce its systemic effect, and cause a still more profound depression of the vasomotor centers, already too exhausted to show the normal reaction of increased blood-pressure as a result of peripheral stimulation. Let the surgeon who practices this form of treatment imagine himself while in perfect health subjected to it.

The only drug which seems to have a distinct effect in desperate cases is adrenalin chloride. This to be effective must be given intravenously and in extreme dilution (1:20,000 normal salt solution), and allowed to flow slowly into a vein. It is transitory in its effect and may have to be repeated. This may be done for twelve to twenty-four hours through a cannula left in the vein.

Artificial respiration has seemed to be of temporary service in the terminal stages of these cases, but I have not seen it save life. Oxygen seems quite futile.

In shock cases complicated by hemor-

rhage the intravenous saline solution is of vital importance and is life-saving in its effect. It should be introduced slowly and repeatedly through a cannula left in the vein.

When the cause of profound depression is due to toxemia, and this is usually the case in delayed shock, the meeting of local surgical indications, free purgation, and elimination through the kidneys are valuable.

When the condition is due to suppression of urine enteroclysis is particularly serviceable. This failing, the indications for splitting the renal capsule seem, in the light of our present knowledge, fairly convincing.

J. CHALMERS DA COSTA, M.D.,

Professor of the Principles of Surgery and Clinical Surgery in the Jefferson Medical College.

My views regarding the treatment of surgical shock may be briefly set forth as follows:

If one is dealing with a surgical operation, rather than with an accident case, every endeavor should be made to prevent the onset of shock, by maintaining the bodily warmth; by administering an enema of hot salt solution while the patient is on the operating table; by being scrupulously careful in the prevention and arrest of hemorrhage; by having the anesthetic given by a skilful man, so that the minimum amount may be administered; and, as is advisable in many cases, by having a hypodermic injection of atropine given on the operating table.

In treating shock, assuming that the case be severe, raising the foot of the bed is a very valuable procedure, unless it causes cyanosis. Bandaging the extremities is habitually employed in the Jefferson Hospital in all serious cases.

I have become entirely convinced that Dr. Crile is correct in his views as to the futility of strychnine in the treatment of shock. I have practically abandoned its use. It hurries the circulation, and does not strengthen it; and even this stimulant action is extremely transitory, and seems to be followed by a disastrous reaction.

I began the use of atropine a number of years ago, influenced by Dr. H. A. Hare's views on this subject, which, I am sure, are correct.

Enemata of hot salt solution are of

very great value. In the more severe cases I use hypodermoclysis or intravenous infusion of salt solution. This latter remedy is frequently much abused. It is liable to be given too rapidly and in too large a quantity; it sometimes overloads the heart, and its use is followed by edema of the lungs. I repeatedly caution "residents" that it should not be given without careful thought; and when it is given, it should be done with scrupulous care.

External heat is of the very first importance.

Adrenalin, in small amounts, given hypodermically, is, I believe, extremely transitory in action, and therefore perfectly futile; but when administered intravenously with salt solution, and given very slowly and gradually for a considerable time, I think it is a remedy of the very highest value.

A study of shock seems to afford ample confirmation from the clinical standpoint of the brilliant and remarkable experimental study made by Dr. Crile, of Cleveland.

WM. L. RODMAN, M.D.,

Professor of Surgery in the Medico-Chirurgical College of Philadelphia.

The treatment of surgical shock—that variable symptom-complex now arising from and continuing as the effect of pain; again, largely due to hemorrhage, and in still other cases to an admixture of pain, hemorrhage, anesthesia, fright, prolonged exposure to cold, and other causes, indefinite and intangible—will depend largely upon its supposed chief etiological factor. A routine treatment of shock cannot be scientific, and in my experience has not been satisfactory. To recognize that there is shock, and shock varying in degree and kind, is necessary before intelligent principles, much less details, can be outlined. We are, perhaps, all more nearly agreed that it is both easier and better to prevent than to relieve shock when once it has occurred.

The operating-room is usually sufficiently warm; but few give the necessary attention to the table. It is usually cold, and this is quite a factor in the production of shock, when an operation is to last more than an hour. Perhaps of greater importance as an etiological factor will

be the insufficient clothing furnished by most hospitals for operations. Instead of the thin cotton nightshirt patients should be supplied with, woolen pajamas, so as to maintain the body heat at the proper point. In certain operations in the upper abdomen, notably upon the stomach, liver, and pancreas, the limbs and thorax should be swathed in cotton or wool before, during, and subsequent to operation. Such procedures are particularly liable to be followed by shock. Unnecessary scrubbing and the prolonged use of solutions and *wet* towels surrounding the operative field are at times objectionable. The dread of an operation, especially that requiring a general anesthetic, is both natural and inherent, and the cautious surgeon will do much in the way of preventing shock by reassuring the patient and expressing whatever doubts and misgivings he may entertain to those in constituted authority, and not, except in rare instances, to the patient. A tactful anesthetist can and should do much to calm the patient; avoid the irritating effects of the vapor upon the throat and respiratory system, frequently produced by forcing the anesthetic, and which, by causing fright, indirectly lead to shock: he should especially guard against oversaturation of the blood at any time, as this is directly provocative of shock.

Rapid and careful hemostasis is essential in operations of magnitude and length if shock is to be minimized. Especially is the loss of blood from large veins quickly felt, as the vasomotor pressure is more influenced by venous than arterial fulness.

Is it best to precede a surgical operation by any medicinal agent? While I am not prepared to say that such practice is always necessary, I am quite convinced that it is usually best to precede both ether and chloroform narcosis by a respiratory and cardiac stimulant. Of all such agents a hypodermic injection of 1/6 of a grain of morphine with 1/150 of atropine is the best. Larger doses are less helpful, and may in themselves secondarily aggravate shock. A small hypodermic of morphine and atropine tranquilizes the nervous system, renders a smaller amount of the anesthetic efficient, and materially lessens, in most instances, the subsequent nausea and vomiting. Moreover, atropine certainly lessens, if indeed

it is not an efficient barrier against, cardiac inhibition.

The use of sharp knives and scissors is of the greatest importance. Especially is this necessary when handling nerves. "Blocking a nerve" with an injection of cocaine when it must be cut or handled arrests at once all afferent impressions, and is therefore a practice to be commended where shock is to be feared. When the nerves of a limb have been "blocked" amputation can be made without subsequent shock if it has not developed, and without increasing it should it already exist. The experiments of Crile demonstrate this incontestably. Shock having appeared, either as a result of trauma or surgical procedure, the indications are to relieve pain if it exists by a hypodermic injection of morphine and atropine; to elevate the foot of the bed decidedly; apply artificial heat by means of hot bottles, water-bags, etc., always being careful to guard against burning the patient. Enteroclysis, eight ounces of normal salt solution being slowly injected into the rectum every four hours, is of decided value, as it relieves thirst and fills the blood-vessels. It should have a temperature of at least 110° F.

This in mild or moderately severe cases will be all that is necessary. In those of a severer type, where the temperature falls to 96°, or even 95°, as it may, for instance, after a prolonged axillary dissection, I prefer to make use of hypodermoclysis or intravenous infusion. If much blood has been lost adrenalin chloride is added. With or without the adrenalin the results are usually prompt and satisfactory. That adrenalin, especially in hemorrhage, increases the efficacy of intravenous infusion I have not the slightest doubt.

I do not now use strychnine in the routine and free way in which a large majority of surgeons do. While not entirely skeptical as to its value, I have always believed it to be an overrated drug in surgical conditions. There have been cases in my practice in which it has been of proven value, but there have been many more cases in which its effects were, to say the least, questionable. In the relatively infrequent cases of shock manifesting themselves by a slow, wavering pulse, strychnine, which increases the frequency and diminishes the length of the heart-

beats, is not only indicated but the very best agent we have at our command. Again I dissent from the general view, and believe that small doses, 1/60 to 1/40 repeated, are much better than larger doses, 1/30 to 1/10.

In the frequent, short, jerky pulse, so usual in shock, I do not use strychnine at all, for it is "lashing the tired horse," and has never seemed useful to me in such cases. Indeed, I believe it to be positively harmful, as it shortens a cardiac impulse already too short. Here saline infusion, which lengthens the heart-stroke, is incomparably better than anything else, and one will not question its influence in less than five minutes after a vein has been opened. Again, small amounts, half to one pint, frequently injected into the vein, are much better than four to six pints at *one time*. What is gained by the former plan is maintained; whereas a large infusion is occasionally followed by a secondary depression, more frequently by a water-logged condition of the tissues, showing itself in pulmonary edema and a copious weeping from the wound, etc. Further, hemorrhage is not infrequently reestablished by the infusion of a large amount of saline, as it thins the blood, lessens its coagulability, and in addition stimulates the heart, all of which militate against, if they do not actually prevent, firm clots in the mouths of bleeding vessels—the only security against hemorrhage. If the respiratory center appears more at fault than the cardiac, as not infrequently happens in the shock of prolonged and deep anesthesia, inhalations of oxygen, conjointly with strychnine hypodermically, give the promptest and best results. Next to strychnine, and but little if any inferior to it, I should place atropine. Cocaine is also an excellent respiratory stimulant, but if the heart's action is both feeble and rapid, coincidentally with the disturbed respiration, it is, in my judgment, contraindicated.

For alcohol I have less appreciation than formerly. In the first place its use by the mouth is usually out of the question; its absorption by the rectum is too slow and uncertain for any but mild or moderately severe cases; and its use hypodermically is necessarily restricted.

With digitalis my experience is possibly more limited than it should have been.

It is of such uncertain strength, the better preparations being difficult to obtain, that I find myself using less of it each year. Still I have seen prompt and abiding results from digitalin 1/100 to 1/50 of a grain hypodermically.

Summarizing, I should say that:

1. Mild cases due to anesthesia and the operation combined require nothing more than oxygen, a decided lowering of the head, and artificial heat.

2. In cases of moderate severity, where the temperature is from one to two degrees below normal, but unaccompanied with great cardiac and respiratory involvement, enemata of hot coffee and whiskey or enteroclysis of hot saline solution will, in addition to position and artificial heat, be all that is necessary.

3. If in addition to a cold, clammy skin, and temperature 96° F. or below, there is much pain, a hypodermic of 1/6 grain of morphine with 1/150 of atropine is added to the above.

Hypodermoclysis may be substituted for or used in conjunction with enteroclysis.

4. If the pulse is short, frequent, and jerky, above 130, and of poor volume, intravenous infusion, preferably with adrenalin chloride, is called for; one-half pint to a pint, frequently given, is better than three or more pints at once.

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Shock is the result of an anemia of the brain, produced by a depression of the sympathetic nervous system following a traumatism. According to the severity of this traumatism are the symptoms marked. The rapid, small pulse indicates the existing depressed condition of the heart. This weakened circulation in its turn tends to maintain the anemia of the brain. The general symptoms of shock are thus maintained as by a vicious circle—the anemia of the brain causing a weak heart, and the weak heart maintaining the anemia of the brain.

The treatment of shock consists in using such measures as will most safely restore the normal circulation of the brain, and hence reestablish the normal functions of the various organs of the body.

The surgeon is called to treat shock from two different standpoints: first, a fully established case of shock, as exists in severe traumatism; and secondly, operative shock, such as is gradually produced by the surgeon himself during the course of an operation. Much of this may or may not be complicated by hemorrhage.

When hemorrhage has taken place, it should be given due consideration in having contributed to the anemia of the brain. In cases of fully developed shock from traumatism, I try to restore the circulation to its normal condition by the application of warmth to the body, lowering the head, bandaging tightly the lower extremities so as to produce autotransfusion to the blood, introducing warm saline solution by enteroclysis, and stimulating the heart by means of doses of strychnine, 1/30 of a grain hypodermically at short intervals until the pulse begins to show some response by increasing its volume.

Inasmuch as the circulation is weak under these circumstances, it follows that physiological effects of strychnine upon the brain would be very slow and defective, and some adjuvant should be resorted to for stimulation of the heart. The application of an electric battery over the heart, in order to give it the direct impulse which it fails to receive from the brain, so stimulates the heart as to facilitate its first efforts, and promote the physiological effects of the strychnine, upon which we depend for more permanently restoring the proper function of the heart, and hence dispelling the anemia of the brain.

Should a severe hemorrhage have contributed to shock, the vascular tension is increased by the intravenous transfusion of normal saline solution.

In operative procedures, prevention of shock should be our endeavor as far as possible. To further this purpose the pulse should be constantly watched by a competent assistant; and as it increases in rapidity and loses in volume, strychnine should be judiciously administered, the patient's head lowered, his legs bandaged, and the body warmth maintained by the application of heat. Should hemorrhage prove of consequence during the operation, intravenous transfusion should be resorted to. If the symptoms of shock increase in spite of these preventive meas-

ures, electric current should be applied over the heart.

Shock is a condition whose intensity varies with each particular case. It may be slight in some cases, greater in others; of such extreme intensity in some cases as to result in immediate death from heart failure, either at the time of the accident or within a short period afterward, especially if the traumatism has occurred about the head.

When a traumatism of any part of the body except the head is the cause of the shock, its greatest intensity takes place at the time of the accident; but should the head be the part injured, the shock which occurs at the time of the accident may be increased by the changes taking place about the brain, such as swelling from contusion, which, as it were, increases the symptoms of shock within a short period after the accident, and is apt to mislead us in diagnosis and disappoint us in treatment.

Again, a traumatism may be so intense as to be beyond the therapeutic action of any drug, inasmuch as the heart is so depressed as not to respond to any form of stimulation. In such a case treatment fails because the depression of the heart is so great that the circulation is practically stopped, and hence will not carry to the brain the stimulating effects of drugs, or of any other therapeutic measures. In such a case the electric current remains the only measure whereby the circulation could possibly be restored.

Strychnine as a cardiac tonic is of the utmost value, but as stated above it would fail in its purpose if the circulation be at the time too weak to have it produce the stimulating effect upon the brain; hence its apparent inefficiency in some cases of deep shock. It remains, however, our best agent in reducing shock to a minimum during an operative procedure, by stimulating the respiratory, cardiac, and vasomotor centers.

The slowness of its absorption in a condition of deep shock in a measure explains its seeming inefficiency, as well as the large doses which the patient may tolerate when the circulation is thus depressed. It has, however, a cumulative action, and on recovering from shock I have sometimes noted incipient toxic effects of the drug, as shown by slight spasms of the muscular system.

THE MANAGEMENT OF CASES OF DIABETES MELLITUS.

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There has not been much added to our knowledge of the treatment of diabetes mellitus of late years, and yet its results may be considered, on the whole, more satisfactory in the last decade than prior to this period. This may be partly ascribed to a more accurate and systematic practice in the urine analysis for sugar, and partly to a better judgment in the administration of food. I do not propose to enter extensively upon the treatment of diabetes, but to dwell upon a few facts which are of importance in determining a proper management. In the first place, it is impossible to ascertain the value of any treatment without an accurate determination, not merely from time to time, but frequently, of the percentage of sugar eliminated in the twenty-four hours' urine; because in this way only can we judge of the actual progress of our cases. Thanks to modern teaching, the majority of graduates of the medical schools of to-day can make such urine analyses, but there are still too many who rely only upon qualitative testing, and I am sorry to say there are a few practitioners who do not seem to be able to test for sugar at all; by which I mean, not that sugar is so often overlooked as that the presence of sugar is inferred when there is no reaction to justify it. I will not go into this matter now; the fact remains that I not so very rarely have sent to me patients who are supposed to have sugar in their urine when I have found none.

It is needless to say that the dietetic treatment of diabetes mellitus is far more important than the medicinal treatment, and it is to this that I will more especially confine myself. The first thing to be done with a diabetic patient is to ascertain what capacity for assimilating sugar and starch there remains in him. Certainly the most satisfactory method of determining this is by giving the patient a definite weighed quantity of protein and carbohydrate food, the diabetic test meal as it were, and studying the urine during its use.

It is not necessary, however, to be so precise as this, and it is seldom practica-

ble for the general practitioner to give definite weights of food. It has been said that a physician who is not in the position to be able to do this ought not to treat diabetes. This is, to say the least, an unfortunate statement, for its adoption would sacrifice many lives on the altar of an unfounded opinion. It is sufficient, for instance, to direct your patient to take for breakfast a cup of coffee with cream but without sugar, a couple of eggs, and a small piece of bread, say three inches square, with butter; for dinner a dish of soup made without vegetables, as much meat as desired, with such green vegetables as spinach, cabbage, lettuce, and string-beans. For supper a cup of tea without sugar, and, if desired, some oyster broth or clam broth made without milk or flour. This diet should be kept up for three days, at the end of which time the urine should be examined for sugar. If no sugar is present it is proven that the patient is able to assimilate as much carbohydrate as is contained in the food allowed. If that is the case it is evident that no further restriction is required, and the quantity of the same kind of food may be increased until the patient is satisfied. Other articles may be added of a kind low in carbohydrates, one at a time. Among articles thus added may be milk, green peas, asparagus, and potato. If, after analysis with such addition, sugar is present, the particular article added should be again eliminated. If, on the other hand, the urine passed during the administration of the meals as first arranged contains sugar, then the bread should be reduced, cut out, or substituted by gluten breads more or less pure. Such elimination and addition being tested by analysis, it is evident now why we have insisted upon the physician being able to make quantitative analyses, because by these alone can he determine where his case stands.

It is surprising what may be accomplished by so simple a method as this in many cases. It is true the cases most benefited are the mild ones; but I have noted many in which, by so simple a method as this, the sugar is made to disappear from the urine and the patient becomes practically well; even able to eat considerable quantities of carbohydrate food, and in fewer instances to be altogether indifferent as to diet. At the same

time, it is wise to prohibit even such patients from using sugar except occasionally, and that in small quantity. A further encouraging fact is this, that in my experience so long as the quantity of glucose in the patient's urine does not exceed two per cent he is in no danger. I do not refer, of course, to those bad cases in which toward a fatal termination the quantity of glucose from having been large becomes suddenly less.

In such a case, in which the patient is on a sufficiently liberal diet to furnish the proper number of calories of food, he should occasionally be put on a diet as free from carbohydrate as possible, in order that for a time the glucose shall be at a minimum. I say an abstinence as complete as possible, because in point of fact there is really no absolute carbohydrate-free food, even meat, eggs, and the greenest vegetables containing minute quantities, so that under the most completely ordered diet at least ten to twenty grammes of carbohydrate daily must be taken. Von Noorden recommends that these patients be subject to a three-weeks' course of such abstinence from carbohydrates at least twice, and if possible three times, a year, while in the intervals a certain amount of carbohydrates may be allowed. In my own experience I do not find that this period of complete abstinence need be as long as von Noorden suggests, but it should be more frequent, say once a month; I am often in the habit of cutting down the diet to as complete abstinence from carbohydrates as possible for from forty-eight to seventy-two hours.

At this point I may refer to the warning raised by some authors against the dangers of a too exclusive protein diet lest it produce diacetic and oxybutyric acids, the supposed causes of diabetic coma. I believe this fear is exaggerated. In the first place, it has just been said that a pure carbohydrate-free diet is impossible; in the second place, I know of no good authority who does insist upon a pure carbohydrate-free diet as a permanent diet. Finally, diabetic coma does occur when the patient is on a pure carbohydrate diet, and there is reason to believe that the acid toxins referred to arise as much from the fixed as from the circulating proteins. On the other hand, there comes a time in every bad case of

diabetes when it matters not what the food is, sugar appears in large quantities at the expense of all forms of protein as well as carbohydrate; an irresistible demand for sugar without a corresponding consumption, when it is better to permit a mixed diet regardless of its carbohydrate contingent. Even here, after a time, if the patient improve, it becomes desirable again to resort to the more stringent diet. In this connection I should like to quote von Noorden, than whom there is no better authority, who says: "I can only say that in the case of a thing upon which so little calculation can be made as the occurrence of diabetic coma, and in view of the fact that coma has been observed under all forms of diet, we should be very careful how we use the word favor. Only an extensive critical comparison of statistics, which has never yet been made, could give objective support to this opinion, and put to one side the subjective judgment of the physician theoretically disposed to one or other view. Such cases prove absolutely nothing."

While the dietetic treatment of diabetes mellitus is by far the most important, it is to be remembered also that a proper hygiene is only second in importance. Such hygiene includes muscular exercise by walking and hill-climbing, or even gymnastics, though always short of fatigue, by bathing, and friction of the skin. Cheerful surroundings are also of great importance, as depression of spirits is especially unfavorable, and all possible should be done to cheer the patient and occupy him mentally.

But it is perhaps the medical treatment which is most anxiously inquired after, both by the patient and the physician. Yet it is really the most disappointing, because here again there are no recent additions of any value to the drugs which have been more or less associated with the treatment of the disease. In the first place, there is only one drug which I know is capable of reducing the quantity of glucose in the urine of a case of diabetes mellitus, and that drug is opium. All preparations of opium have this effect. But the gum opium is probably the most efficient. Codeine, however, suggested by Pavy, has become the most popular preparation, chiefly because its use is unattended with the unpleasant effects which

belong to the other preparations of opium, although it is both more expensive and less efficient. There is reason to believe that it is by quieting nervous irritability that opium acts favorably. It may be presumed, therefore, that any drug which has a similar tendency, such as the bromides, belladonna, hyoscyamus, etc., might be useful. In point of fact they are not; rarely the bromides may have a slight influence. Recent discoveries as to the relation of adrenalin to sugar formation have as yet led to no practical results. It will be remembered that studies upon this subject led to the belief that if a substance could be found which would promote the oxidation of sugar in the blood, it would be a cure for diabetes. Unfortunately none as yet has been found.

Of the remaining drugs there is only one in which I have any confidence, and that is arsenic. I think that the continuous use of small doses of Fowler's solution does favorably influence the course of a diabetes mellitus; whether as a tonic or as a promoter of oxidation I do not know. It may be that it operates in the latter way. Other tonics are of course indicated: such are iron, strychnine, and the simple bitters. Iron unfortunately too often tends to make the patient constipated, and constipation is a very unfavorable complication of diabetes. There is no better determined fact than that diabetes complicated with obstinate constipation is a very unfavorable form.

The alkalies are useful in diabetes not so much as remedies as a protection against its more serious complication, the acid intoxications; and I think it a very good idea to have a diabetic patient more or less constantly under the use of alkalies, either in the shape of the citrates or the carbonates of potash or the natural alkaline mineral waters. This brings me to the matter of the treatment of diabetes at mineral springs, such as Vichy, Carlsbad, and Neuenahr. It is not unlikely that the aperient properties of Carlsbad water by relieving the liver and intestinal canal of torpors act favorably in diabetes, and that Vichy water operates favorably through its alkalinity. But perhaps the chief advantage of these places lies in the relaxation, the freedom from care, the regular diet, and the improvement of the hygiene of the individual.

For the complications the most important treatment is that directed to the disease itself. This relieves the pruritus, the eczemas, the tendency to boils, although the usual local remedies for these conditions may be employed. As we have already intimated, for diabetic coma the indication is to alkalize the urine as thoroughly and as quickly as possible. Without doubt temporary benefit is obtained from the intravenous or subcutaneous injection of salt solution, or, better, of weak alkaline solution; but while a reviving effect undoubtedly follows such use I have never seen any permanent benefit. Greater possibilities exist if the attacks can be anticipated and combated by large doses of the alkalies. With a view to such anticipation it is of the greatest importance that tests should be made for acetone and diacetic acid almost as often as for glucose. The nitroprussid of sodium test for acetone and the chloride of iron test for diacetic acid are easily applied. In threatened diabetic coma, six or eight grammes (90 or 120 grains) of sodium bicarbonate or potassium citrate may be used daily, dissolved in Vichy or Neuenahr water.

*THE TREATMENT OF INSANITY, WITH
SPECIAL REFERENCE TO EXTRA-
MURAL CASES.¹*

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Some knowledge of the management and treatment of insanity on the part of the general practitioner is a matter of absolute necessity, for it is invariably the general practitioner who sees the patient first. It usually devolves upon him to decide not only the course to be pursued, but especially the immediate treatment of the case.

Naturally, the first object is to insure as far as possible the safety of the patient and of those about him. Almost immediately there comes up the question as to commitment. In a large number of cases this question almost decides itself. This is the case, for instance, in acute mania and in other forms of mental disturbance

with excitement, and also in most cases of delusional lunacy. Commitment, however, is attended by a serious responsibility for the practitioner, and it is necessary for him to act cautiously and to bear in mind a number of important points. In the first place, he should never allow himself to be hurried as to commitment. He should always insist upon sufficient time to make a proper examination and at least an approximate diagnosis. Even in cases attended by marked excitement should he observe this rule. It is exceedingly annoying, for instance, to a physician to find that he has committed a patient to an asylum who was merely actively delirious, and in whom the delirium, as is usually the case, has subsided in a few days—perhaps shortly after the admission into the asylum. In such an instance the friends and relatives who were active in insisting upon commitment may be the very ones to lay blame upon the physician—to accuse him of having acted hastily and of having needlessly placed the stigma of insanity upon the patient and the patient's family. It is necessary therefore that the physician should be able to make a differential diagnosis between a mere delirium and a mania. A delirium has a duration of a few hours, several days, or less frequently a week or two. A mania on the other hand has a duration extending over two, three, or more months. It is of importance always to act deliberately and to avoid haste unless the facts of the illness from which the patient is suffering are very evident and urgency be great. Certainly in all cases in which the patient is neither dangerous nor violent the physician should take sufficient time to satisfy himself thoroughly first as to the actual existence of insanity, and secondly as to the advisability of commitment. The physician should invariably decline to commit whenever any doubt, no matter how slight, arises. The legal responsibility of physicians in making commitment should always be borne in mind.

The patient having been examined and the diagnosis of insanity having been made, the physician should next consider whether the patient is dangerous to himself or others. If so, commitment should be advised. Secondly, other things equal, commitment should be advised when it is evident that the treatment cannot be car-

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ried on satisfactorily outside of an institution.

It becomes evident that cases of insanity separate themselves naturally into two great groups, the intramural and the extramural cases. While the intramural cases—those requiring commitment—constitute by far the larger number, a little reflection will convince us that the number of extramural cases is by no means small. Further, even the cases which become intramural are in the hands of the practitioner for a shorter or longer period previous to commitment. Let us briefly turn our attention first to this group of cases.

As soon as the decision to commit has been reached, the patient should be carefully watched. This may devolve upon the members of the family, or it may be necessary for the time being to employ a trained nurse, though the latter course is usually not necessary. The transfer to the asylum should be accomplished as soon and as expeditiously as possible. In the interval no treatment whatever should be instituted. Only exceptionally is it necessary to give some sedative to moderate or allay excitement. Here the rule should be followed to give the milder drugs—that is, those which are not attended by much depression. Drugs had best be avoided or resorted to only in emergency, as for example when we have to choose between their use and gross physical restraint. Other things equal, drugs are withdrawn at once after the patient's admission to the asylum.

The cases which cannot or should not be committed—that is, the extramural cases—comprise the various transient deliria, mild melancholia, mild and harmless paranoia, the neurasthenic insanities, and some forms of dementia, such as mild senile dementia. It is hardly necessary for me to enter into a discussion of the treatment of delirium. The delirium which accompanies the ordinary febrile affections, the various exanthemata and infectious diseases, rarely requires special treatment. The treatment and management of the underlying disease as a rule alone concerns the physician. There are, however, other deliria which it is incumbent upon the physician to treat; these are delirium grave, which is fortunately very rare, the postfebrile deliria (the deliria which come on during the convales-

cent periods of infectious diseases, such as typhoid fever, grippe, erysipelas, pneumonia, etc.), and the deliria which follow the abuse of certain poisons, such as alcohol. The management of a delirium should be conducted upon general principles. We should bear in mind that we have to deal with two underlying pathological factors—first nervous exhaustion, and secondly the toxin of some infectious disease or some poison introduced from without, such as alcohol. The treatment resolves itself into the following indications: first the elimination of the poison, secondly the maintenance of the nervous strength, and thirdly the allaying of the excitement so far as may be necessary. As much as possible these indications must be met promptly and simultaneously. The means at our command consist in the administration of liquids in large quantities, the free use of baths, the free administration of nourishment, and the administration, when necessary, of cardiac stimulants and nervous sedatives. Liquids, of course, act as diuretics, while the action of the skin is stimulated by the bathing. If fever be present, cold sponging or other forms of cold bathing are applicable; if, however, the delirium be afebrile, as is usually the case in the postinfectious and toxic deliria, the most efficient form of hydrotherapy is a prolonged warm immersion bath. The temperature of such a bath should range from 90° to 95° F. However, in ordinary household practice a warm immersion bath can only exceptionally be used. It is not practicable as a rule to carry a struggling patient to a bathroom and subject him to the strain of the necessary handling and manipulation. Much more valuable, and in some cases more efficacious, is the warm pack. This should be given in the ordinary way, save that the sheet, instead of being dipped in cold water, should be dipped in warm or tepid water. The patient having been thoroughly and closely wrapped, blankets are applied over the sheet and the patient allowed to remain in the pack for about an hour. As a rule profuse diaphoresis results, with a marked diminution of the excitement. In delirium of marked severity, however, both the wet pack and the immersion bath have serious drawbacks. The necessary manipulations add greatly to the confusion and excitement from which the patient is suf-

fering, and may in this way greatly aggravate the exhaustion. Further, neither the wet pack nor the immersion bath should be repeated too often. Especially is this caution necessary in cases in which the delirium is somewhat prolonged, and in cases in which exhaustion is a marked factor. The sweating from the wet pack should in this connection be especially borne in mind.

It is of the utmost importance in many cases, especially if the delirium be violent and the patient be expending much strength in his struggles, to administer sedatives. No well-founded objection can be made to their judicious employment, for the quiet and sleep produced are of the utmost benefit. As a rule the milder hypnotics prove efficacious, and if the patient can be induced to swallow, a dose of trional, fifteen or twenty grains, can be administered; or better still, trional with sulphonal, fifteen or twenty grains of the former with ten or fifteen grains of the latter. Occasionally veronal, ten grains, or veronal ten grains with sulphonal fifteen grains, has a very happy effect. If the excitement be very great, and the struggling of the patient severe, the question arises whether some form of hypodermic medication should not be practiced. In this connection hyoscine presents itself. Hyoscine has the disadvantage of being somewhat uncertain in its action, and while by many writers scopolamine is considered to be identical with hyoscine, in the experience of the writer scopolamine is a much more certain remedy. In doses of $1/200$ or $1/100$ of a grain it acts speedily and promptly in allaying excitement. The writer, however, rarely uses scopolamine alone, but usually together with a small dose of morphine. For instance, a hypodermic injection of $1/100$ of a grain of scopolamine with $1/8$ of a grain of morphine has a prompt sedative effect, without there being any appreciable cardiac or nervous depression. The two drugs, scopolamine and morphine, act synergistically, one reinforcing the other, only a small dose of each being necessary. Many patients after a hypodermic injection permit of free manipulation. A bath or wet pack, which before such a hypodermic injection could only be given with the greatest difficulty, can now be given with ease. Such a patient is also much more

amenable to other procedures, such as the giving of an enema or the administration of liquids by the mouth. The writer is fully aware of the disfavor in which morphine is held by alienists, but there certainly can be no objection to its use as an emergency remedy in small doses and together with scopolamine.

In considering remedies which are of value in bringing about rapid sedation, we should be mindful of paraldehyde. This is a remedy which produces sleep almost immediately, certainly within ten or fifteen minutes, and this too without producing the slightest cardiac or respiratory depression. Its disgusting odor and offensive taste are its principal objections, and yet many patients, especially male patients, can be induced to take the drug if it be suspended in whiskey. In cases of great excitement a drachm may be administered with great advantage. Unfortunately the sleep it produces lasts only from two to three hours. Paraldehyde, however, may prove to be a valuable adjuvant when scopolamine and morphine have been given in small doses and have been ineffectual in producing sleep, or when trional and sulphonal have been given and the remedies, acting slowly, fail of effect. Under such circumstances paraldehyde hastens the sleep, which otherwise ensues after the taking of these drugs only after a decided interval of time. In the choice of hypnotics and the method of their administration, we must be guided by general principles. If used at all they should be used promptly, and in sufficient dose. We should remember also that even in patients who are treated by sponging, warm baths, or wet packs, a hypnotic may first be administered with the very greatest advantage; not only may the bath be given more readily, but its effect is enhanced and prolonged by the sedative that has been given.

Delirium is fortunately of relatively short duration, and questions as to the administration of nourishment rarely become acute. However, if there be danger of exhaustion measures should so far as possible be instituted to maintain the strength of the patient: liquid food, milk, eggs, beef preparations of various kinds should be administered, and if the loss of strength be great, heart tonics or stimulants may be resorted to. In this connection strychnine, digitalis, strophan-

thus, nitroglycerin, cocaine, and perhaps adrenalin should be borne in mind.

It occasionally happens that in the post-febrile period of one of the infectious diseases, for example typhoid fever, instead of a delirium supervening the patient passes into a condition of confusion; as in delirium there enter into the causation of confusion two factors: first the toxins of the infection, and secondly persistent exhaustion. Confusion (or confusional insanity) differs from delirium not only in the less violent, less acute character of its symptoms, but also in its duration. As a rule, when once established it lasts many months—three or four or more. There are present, as in delirium, illusions, hallucinations, delusions, confusion, incoherence, and hurry of thought; cerebral activity, however, is never aroused to the same pitch as in delirium, and the whole course of the affection is attended by much less excitement. In the treatment of confusion we are to be guided by principles similar to those just discussed in speaking of delirium, but we are especially confronted by the all-important fact of the long duration of the illness. If the means of the patient permit, proper arrangements should be made for his care outside of an asylum. The entire treatment can be conducted at his own home or at some other suitable establishment, provided the means of the patient permit. Such a patient will require at least two trained attendants. The question of commitment depends entirely upon the fact whether the patient can be cared for satisfactorily and properly outside of the asylum. If this be decided upon, it is wise, because of his profound exhaustion, to place the patient in bed. Even cases of mild confusion do better when the plan of bed treatment is carried out. As a rule cases of confusion are quite manageable. Food can usually be administered without much difficulty, the patients also permit themselves to be handled and bathed readily, and it is also possible, especially during the period of convalescence, to employ massage. As far as possible rest methods such as are practiced in the treatment of neurasthenia should be instituted. Full feeding as in neurasthenia should also be carried out; milk, eggs, and other food should be given in large quantities.

Medication should be avoided, or at

least should be used only exceptionally, as for example when there is very unusual excitement, and then the drug should be used for a time only. The mere length of the duration of the affection is a warning against the use of drugs, especially the long-continued or frequently-repeated administration of drugs. This applies also to the use of tonic and supporting remedies. As a rule medicines are not required, and they had best be omitted. Here, however, general principles and common sense must guide the practitioner, for no hard and fast rule can be laid down. A word of caution is necessary with regard to the use of drugs in all cases attended with excitement and loss of sleep. Be content if the patient secures four or five hours' sleep out of the twenty-four. A sleep of eight or nine hours' duration is not a necessity, and while the occasional use of a narcotic is not injurious, the long-continued and oft-repeated administration of drugs unquestionably does harm.

Now and then, instead of the patient passing into a condition of confusion, stupor may ensue during the convalescent period of one of the infectious diseases, such as grippe, typhoid fever, pneumonia, acute articular rheumatism, the puerperium, trauma, shock, etc. Here again the question of commitment is one of practicability. If the patient has the means to employ two skilled attendants he can be safely cared for in his own home or in some other suitable place. A treatment is to be carried out similar to that of confusion. Like confusion, stupor is of long duration. Many weeks, often months, pass by before convalescence is established, and during this time as much food as possible must be given, for the treatment is essentially supporting in character. Feeding does not usually offer much difficulty. Frequently it is possible to administer very large amounts of milk and raw eggs. Now and then, however, the stupor is so profound as to necessitate forcible feeding—that is, feeding by means of the nasal tube. Drugs are rarely necessary. Massage may be used during the convalescence.

In confusion and stupor the circumstances which usually obtain do not differ, so far as nursing and medical attendance is concerned, from those of a case of some continued fever. The patient

is as a rule not violent and can readily be controlled. Two nurses, one relieving the other, are necessary, as it is not safe to leave the patient alone. Because of the long duration of these affections, the expense involved by trained nursing and medical attendance outside of an asylum necessitates in many instances the commitment of the patient.

Of the manic-depressive group of the insanities, melancholia is the only one that can be managed outside of an asylum, and this only when the melancholia is mild in degree and under special circumstances. A case of typical mania obviously cannot be treated outside of an asylum. This is also true of the large number of the milder cases of mania, *e. g.* those termed hypomania. Hypomania often presents to the physician numerous practical difficulties, because while the patient is expansive and exalted his excitement is not so great as to lead his friends to suspect that he is insane. He is as a rule boisterous and loud in his conduct, often extravagant and reckless. Frequently he drinks to excess, and is frequently guilty of erotic and immoral conduct; and yet while these symptoms are present the degree of lucidity of mind may be so great as to lead the friends of the patient to scout the idea of insanity. Such patients are usually exceedingly difficult to treat, because they reject the proffered assistance of both physician and nurses. If the symptoms become more pronounced and the friends of the patient are finally convinced that their relative is insane and commitment is agreed upon, it not infrequently happens that the patient after commitment takes legal steps to secure his release. Quite often too misguided friends and others espouse his cause, and much personal annoyance and inconvenience may be caused the physician and the members of the family who were active in bringing about the commitment. Cases of hypomania, especially when occurring in women, often present great difficulties, for at times they can neither be committed nor can they be successfully controlled outside.

As above stated, of the manic-depressive group of mental affections, the milder forms of melancholia are the only ones the care of which is practicable outside of an institution. If the patient be delusional and hallucinatory, the case is ob-

viously one for commitment, even if the amount of depression be not great. It is only in the perfectly lucid and mild forms of melancholia that an attempt to treat the patient must be made outside of the hospital, and for the special reason that such cases cannot legally be committed. No jury would hold a perfectly lucid patient, though the preservation of lucidity, let it be said in passing, is by no means an index of the degree or of the intensity of the melancholia.

Neither time nor occasion will permit of a detailed discussion of the treatment of melancholia. Suffice it to say that the best results are secured by full rest methods, such as are carried out in the treatment of neurasthenia. These embrace isolation, prolonged rest in bed, and full feeding. Massage may also be employed in melancholia provided the patient tolerates it. In my experience cases of melancholia are frequently irritated and annoyed by massage. Instead of making them better, they are made distinctly worse. Similar remarks apply also to electricity, which plays no rôle whatever in the therapeutics of melancholia. General bathing should be resorted to. Radical hydrotherapy, like other radical measures, is not well borne. There is one element in the treatment of melancholia that must make every conscientious physician feel uneasy about his patient—no matter how carefully he has surrounded him by attendants or members of the family—and that is the tendency to suicide, a tendency which is more or less present in every case. Even in the milder forms of lucid melancholia the tendency unquestionably exists, and this is the explanation of the majority of suicides which we read of in the daily papers. Self-destruction is best guarded against in the asylum, though it cannot be absolutely guarded against even there. Outside of the asylum walls, where our lucid cases of melancholia must necessarily be, the protection possible to throw about them not infrequently proves ineffectual and suicide may occur.

Cases of paranoia—that is, cases of chronic delusional lunacy—of course require commitment to an asylum. However, now and then we meet with mild and comparatively harmless cases of paranoia, and the question arises as to what had best be done. Often the friends

of the patient will stoutly resist commitment; at other times the patient's lucidity is such that it is doubtful whether he could be held by the asylum authorities. In such cases the ordinary physiological methods applicable to other cases of mental disease are of little use. It is a wiser plan to secure some simple and congenial employment for the patient. If he is occupied and kept busy, he will eat better, sleep better, and pay less attention to his delusive ideas. The friends, however, should always be warned that paranoia, no matter how mild, rarely remains stationary, that it is usually a progressive affection, and that the time may come when the patient will be dangerous and violent.

There is another group of insanities which are necessarily treated outside of the asylums, at least the great majority of them. I allude to the neurasthenic insanities. Here the mental condition is such as to rarely permit of, let alone necessitate, the commitment of the patient to an institution. The neurasthenic insanities present themselves in the form of obsessions, irresistible impulses, indecision, and defects of will. They form a group of affections having as their basis both neurasthenia and neuropathy. I have for convenience divided them clinically into, first, the insanity of the special fears, such as the fear of open places (agoraphobia), closed places (claustrophobia), the fear of filth (mysophobia), etc.; secondly, the insanity of indecision (the *folie du doute*); thirdly, the insanity from deficient inhibition (that is, the insanity with irresistible impulse); and fourthly, the insanity from deficient will, or so-called abulic insanity. That both neurasthenia and neuropathy are factors present in every case can, I believe, be demonstrated. When we take up the consideration of the psychic phenomena of neurasthenia we are impressed at the very outset by the symptom of ready exhaustion—of marked diminution in the capacity for sustained intellectual effort. As is well known, nervous exhaustion may supervene in individuals who are otherwise perfectly normal. It may result from unphysiologic living, overwork, overstrain, and other facts productive of chronic exhaustion. It is thus an affection to which every one is liable, those of normal as well as those of pathologic

heredity. The symptoms of neurasthenia, as ordinarily met with, are those of chronic fatigue, and I have upon various occasions applied to it the term of the fatigue neurosis.

However, if the patient, instead of having a normal nervous organization, is also neuropathic, various defects, indecision, deficient will, deficient inhibition, and general or special fears, make their appearance. Time will not permit me to enter into a discussion of this subject in detail, but the foregoing considerations, while they admit the large rôle played by the neuropathic factors, furnish us an important indication of treatment because of the underlying neurasthenia. Cases of neurasthenic insanity should be treated vigorously by physiological methods. Especially is this true of the early and beginning cases. Full rest and other measures to force up the nutrition and the general health of the patient should be practiced. While these methods are being carried out, the patient should have assigned to him a nurse who is experienced not only in rest methods, but is possessed of intelligence and sufficient force of character to be able to influence the patient. The nurse should tactfully and persistently confront and endeavor to break up the absurd associations upon which the special fears or other obsessions depend. Here again time forbids an extensive consideration of the subject. Suffice it to say, however, that physiological methods, physical and psychic, must be vigorously instituted, and when instituted sufficiently early they are not infrequently followed by a very gratifying result. The rôle played by physical and mental exercise—i. e., by properly adapted work and occupation—cannot in these cases be overestimated.

The dementias, including under this head senile dementia, dementia præcox, and parietic dementia, all come for a time at least under the care of the general practitioner. Specific rules for the management of these cases cannot be laid down. The physician can only be impressed with the importance of making an early diagnosis, and secondly of not delaying commitment to the asylum too long. It is perfectly true that cases of senile dementia, if the dementia be not pronounced, can be frequently cared for at their own homes until the fatal termination super-

venes. This is very rarely true, however, either of paresis or dementia præcox.

Paresis requires a special word. The patient invariably presents himself to the general practitioner first. It is of the utmost importance therefore that the case be immediately recognized, and secondly is it of importance—because of the unequivocal relation which the disease bears to syphilis—that a thorough mercurial treatment be instituted. It has only lately been maintained that paresis in its incipency can be cured, provided the mercurials are used thoroughly and radically. A French writer, Leredde, boldly claims that both paresis and tabes are actually curable, provided they be treated sufficiently radically and thoroughly with the mercurials and at an early stage. I am one of those who have never witnessed a cure in an undoubted parietic. I nevertheless recognize the great importance of the mercurial treatment. Inunctions or hypodermic injections of gray oil should be given until a most profound constitutional impression has been made upon the patient, and this impression should be maintained for a considerable period of time.

REMARKS UPON CERTAIN STATES OF VASCULAR SPASM AND FIBROSIS.¹

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I wish to discuss in this paper certain conditions of the circulatory apparatus which, I think, receive too little attention from the profession and from the textbooks and manuals from which we are wont to refresh our memories. The cases to which I refer represent conditions which are certain to affect a fairly large proportion of all the men in this room if they live beyond middle life, for these states are, to a certain extent, coincident with the onset of old age, and old age comes to some at fifty and to others at eighty. Furthermore, these conditions are peculiarly prone to arise in four pursuits of life, namely, in the banker or broker, the ironmaster, the lawyer, and the physician. This susceptibility depends upon the fact that they are subjected to

great nervous and mental strain, and some of them are individuals who partake liberally and constantly of alcohol and rich food, the latter often being eaten when the system is ill prepared to deal with it adequately. The condition is met with not rarely in other persons, but it is in these four classes that it occurs oftenest. In most of them the vessels, the kidneys, and the heart form a triad of morbid change, but in some the heart and kidneys primarily escape, the vascular lesion being the chief change from the normal. With the state characterized by disease of the triad just named we are all familiar, and it is often difficult to determine which one of the triad first suffered, for when first seen by the physician all three are so equally affected that the process may be said to be coincident. With this type it is not my intention to deal, save to point out that they differ materially in their clinical history from the cases I shall describe, more particularly as to the duration of life, which is nearly always short.

I wish to speak of that class of cases in which the vascular symptoms so largely predominate that there can be no reasonable doubt that the lesions are primarily in the vessels rather than in the kidneys. Further, I intend to discuss but one type of these cases, namely, those in which there is an immoderate degree of arterial tension without any renal lesions which are demonstrable by the ordinary symptoms or by urinary analysis. In these cases the state of the blood-vessels is nearly always the same, although it differs in degree, and the heart may secondarily present signs of hypertrophy, or of feebleness from fatigue or degeneration.

The cases on which the views here discussed are based have been met with during a space of several years, and some of them have been studied with my friend, Dr. de Schweinitz, who has examined them from the standpoint of the ophthalmologist, while I have seen them through the glasses of the medical clinician. In other instances the cases have been studied with the aid of Dr. Stanton, whose work with the sphygmomanometer has so well qualified him to study the arterial tension as we meet with it at the bedside or in the consulting-room.

¹Read before the Philadelphia County Medical Society, Dec. 18, 1905.

To express the matter briefly, we meet with three types of cases of high arterial tension: (1) Those in which persistently high tension is a result of spasm due to prolonged nervous stress combined with certain abuses as to habits of life, food, and drink. (2) Those in which tension is high because in addition to spasm there is gradually developing, or has already developed, fibroid change in the vessels. (3) Cases in which, after a prolonged period of high tension, there more or less suddenly develops persistent low tension in which the arteries are relaxed and distended, so that they resemble veins to some degree in their caliber and compressibility.

The first class, in which the tension is chiefly due to spasm of the vessels, is met with in middle-aged men who lead lives calculated to throw great strain upon the vascular system, as brokers and physicians. In these cases fatigue is often overcome by stimulants, and the physician does not see the case until an attempt to improve the health by violent exercise causes dyspnea or cardiac distress. These cases usually show only moderate degrees of abnormally high pressure, rarely exceeding 150 or 160 systolic. Auscultation reveals an accentuated second sound, an accentuated first sound, and some hypertrophy, as evidenced by a forcible apex beat. Occasionally a beat of the heart is missed, as if the heart was tired or discouraged at the perpetual effort against an abnormal *vis a fronte*. If these cases will rest from severe exercise and business stress, and take the nitrites, with no stimulants, they speedily improve and often get back to a normal state. The tension is due to spasm of the vessels and not to well-developed fibroid change.

The second type, in which there is both spasm and fibroid change, presents different symptoms according to the degree of these two abnormal states, and they respond to treatment readily if the spasm factor is uppermost, and but slowly, or not at all, if the fibroid change is most marked.

The third type is represented by the following cases: A man of fifty-seven years, an ironmaster by occupation, who had been a constant user of whiskey in moderate quantities every day for many years, presented himself in my consult-

ing-room in April, 1905, with a history that he had been for several months suffering from "asthmatic attacks." These attacks were not true asthma, but of the nature of cardiac oppression with dyspnea. He was lean and showed evidences of nervous stress. His urine had contained albumin, but did not when he came under my care, and has not since. A physical examination revealed a very sharply accentuated aortic second sound and very tense vessels, so tense that the radials could not be closed by pressure with the fingers. The apex beat was very forcible, but not diffuse. There was marked cardiac hypertrophy. An estimation of his pressure at this time with the sphygmomanometer showed that his high, or systolic, pressure equaled 225 millimeters of mercury, with a low pressure of 155. At times the high pressure would rise with nervous excitement to the remarkable height of 255 millimeters, showing not only vascular spasm but the presence of a powerful left ventricle. He was placed in bed, given a rest-cure with massage and alterative treatment, and in two weeks the pressure was reduced to 200 high and 130 low. This was the lowest point to which I could reduce the pressure, even when large doses of nitroglycerin, sufficient in size to make his head ache, was given. He returned home very much better as to his own sense of health, but came back in six weeks with a pressure of 225 high and 145 low, with some beats at 215 high. A month later with little treatment he again returned with a pressure of from 230 to 205 and a low pressure of 140. He could not remain for active treatment, and during the summer had several attacks of cardiac asthma. In last October he returned for further examination. At this time it was evident that his heart and large vessels had yielded to the great strain thrown upon them. The first sound was not so good as before, and the apex beat was much more diffuse. The tension was noticeably lower, and the sphygmomanometer showed a pressure of 190 high and 135 low. Under the free use of nitroglycerin and rest in bed it fell in forty-eight hours to 170, with occasional beats at 190, and a low pressure of 130 to 135.

There are several points in connection with this case which are of interest aside from the fact that his pressure was as

high as 255 millimeters of Hg when his heart was equal to its work. First, the value of rest in reducing pressure; secondly, the fact that as the high pressure fell the low pressure remained about constant, varying from 130 to 145; or, in other words, treatment was able to lower his systolic pressure from 40 to 50 points, but did not alter his diastolic pressure more than 10 or 15 points. When, however, the heart began to fail under the strain the systolic pressure fell to 190 under excitement, and 170 when at rest. Again, tracings at this time showed that the heart action as to rhythm and force was impaired, and the case illustrates the type already named in which the pressure is not due to spasm alone but to fixation of the smaller vessel walls by fibrosis, so that vascular relaxants cannot do much good. When the heart was given another period of rest, with a little digitalis to support it, and nitroglycerin was freely used to prevent rise of tension from spasm due to digitalis, it was found possible to greatly improve the first sound, to diminish the signs of cardiac dilatation, and to give the patient much cardiac comfort. Finally, this case is of great interest in another respect, namely, that it illustrates a type in which nitroglycerin, in any dose which is compatible with the comfort of the patient, fails to lower tension because the change in the peripheral vessels is essentially one of fixation by fibrosis and not by spasm. This is an important therapeutic point, showing that the physician can expect nitroglycerin only to reduce the part of the hypertension which is due to spasm and not that part due to fibroid change. The latter state is largely beyond the influence of medicinal agents unless it be the iodides. On the other hand, the combined effect of rest, massage, and iodides will often, even when fibrosis is well developed, not only produce excellent results, in that the state of a tired heart is improved, but also result in a marked diminution of arterial tension, partly by a cardiac and partly by a vascular influence. Thus I have in another case for three consecutive years been able by such a course of treatment to so lower arterial pressure that the anginoid attacks due to spasm and fibrosis have been prevented from occurring for months at a time, a fall in both

the systolic and diastolic pressure, amounting to 15 mm. of Hg, being maintained for months by treatment by drugs. This case is also an excellent example of the manner in which the heart may escape serious lesions even when the vessels are gravely affected, for although he has had an aortic systolic murmur due to aortitis for several years and a systolic pressure of 170, or over, he has recently passed through an operation for purulent peritonitis due to appendicitis, during which a German surgeon, called in an emergency, and ignorant of his vascular state, gave him chloroform for one and a half hours. Chloroform, because of its depressant effect upon blood-pressure, was perhaps safer than ether, but I should have considered that the heart was in too serious a state to permit of the use of such a cardiac depressant as the first named drug. In other words, if this case had been one in which the heart, kidneys, and vessels were all involved together in the sclerotic change, he probably would not have survived the operation.

Another case which has been under my care for a very much longer time also illustrates the fact that the most remarkable changes may take place in the vessels, without the heart undergoing fatal change, provided only that by some good fortune the coronary vessels and communicating fibers of His suffer slightly.

In December, 1900, I first saw Mr. H., a banker from the western part of this State. At that time Dr. de Schweinitz stated that he presented typical Gunn's vessels. There was an extraordinary degree of arterial pressure, which made it impossible to close the radials by pressure with the fingers. As the sphygmomanometer was then little used in medicine, no records were made. At his second left costal cartilage an aortic systolic murmur, chiefly heard on expiration, was noticed. It was undoubtedly not valvular in origin. The urine contained a very faint trace of albumin. His heart was greatly hypertrophied and dilated, resembling the "ox heart" of aortic regurgitation, but there was not then, nor has there been since, any sign of that valvular lesion. He was given gradually ascending doses of nitroglycerin to lower tension, and aconite to diminish the excessive cardiac impulse, which was so great that it forced

my head to and fro whenever I listened to his heart. Partly for his general vascular state but particularly because of the retinal hemorrhages which he presented, he was also given full doses of sodium iodide. Under this treatment at the end of six months the aortic murmur had almost entirely disappeared, and the second sound was not nearly so accentuated. At the end of two years he was taking 10/100 of nitroglycerin and nearly a grain of the solid extract of aconite three times a day. He stated that he was feeling remarkably improved, but five months later he showed a most extraordinary degree of arterial tension, and a degree of cardiac hypertrophy which was also remarkable. The nitroglycerin was increased to 12/100 a day, and the iodide and aconite maintained. As after a few days these doses did no good the nitroglycerin was increased to 8/50 a day, and soon after to 12/50 and then to 14/25. Finally, three years after treatment was begun, the dose amounted to twelve-tenths a day. Albuminuria varied in degree through these three years. Often it was absent, rarely it was marked, sometimes it was a mere trace. In March, 1903, his tension was not worse, and his heart's action still forcible. At this time Dr. de Schweinitz wrote me as follows:

"Mr. H. certainly presents the most astonishing appearance of high tension. I do not know when I have seen such an outlining of the superficial vessels. Curiously enough, his eyes are not any worse than when I reported to you last. There are a good many hemorrhages in the right or better eye, but not more than there were last spring. The left eye shows a most elaborate development of the so-called proliferating retinitis, which is a sequel of retinal hemorrhages."

Seven months later, in October, 1903, Dr. de Schweinitz wrote again:

"The vision of Mr. H.'s right eye is perfect, and the retina entirely clear of any hemorrhages or exudates, with the exception of one small spot in the lower portion of the retina, which has been there for a long time. The retinal circulation is good, considering all things. I do not mean that there is no compression by sclerotic arteries, but there is no excessive compression. The condition of the left eye remains about the same, the

proliferating retinitis the result of the former hemorrhages not having increased. It is, however, in so far as its response to remedial agents is concerned, not to be influenced, as it represents a connective-tissue formation. I do not see any fresh hemorrhages. On the whole, I think the eye report is a satisfactory one and conforms to the improvement which I learn from you has taken place in the general condition, which I myself observe."

A year later, namely, in October, 1904, when he presented himself the picture had changed greatly, and he showed the signs of *ruptured compensation* not only as to his heart *but as to his large vessels*, a condition which I think deserves more attention than it receives. The area of cardiac dulness had greatly increased, and the apex beat was very diffuse and quite feeble. He felt weak, was easily exhausted, and seemed ill. His temporal arteries, which had heretofore been like whipcords, were now distended and looked like veins. They were soft and relaxed. At the apex of his heart a distinct systolic murmur, due to insufficiency at the mitral orifice, could be clearly heard. He was placed in bed and given a rest-cure with strychnine and cactus. The aconite and nitroglycerin was stopped, but the iodide was continued. A general fibroid change in all his joints was noticeable. His spine was stiff and curved, as in spondylitis rhizomelique. He improved greatly as to the tone of his vessels and his heart under this treatment, and returned home.

On his return in May, 1905, I had made the first estimation of his arterial tension. The high or systolic pressure was 180, the low 130, but the heart had apparently rallied to the strain a second time, and Dr. Stanton reported that he had never seen such extraordinary pulse waves; they amounted to 22 millimeters of mercury at a stroke. The large vessels were relaxed and distended, and the enormous pulse wave was clearly to be seen in them. In other words, the heart regained its power, the large vessels were relaxed, but the peripheral resistance and rigidity of the arterioles were great.

In October of this year the results with the sphygmomanometer were the same as to pressure, namely, 185 high to 135 or 140 millimeters low, but the heart was

much more regular in its action and the individual pulse beats were more regular as to force. An examination of his vessels and of his tension revealed still more improvement during the present month.

There are many points of interest in this case, therapeutic, diagnostic, and prognostic. Therapeutically it is of interest because of the large doses of nitroglycerin which he took, over a grain a day, without any disagreeable symptoms, although they produced but little effect on tension, because the tension was due more to fibroid change than spasm; secondly, the fact that these full doses of nitroglycerin diminished sexual power, and caused a state of vesical feebleness so that it became difficult for him to hold and pass his water; and thirdly, because his cardiac hypertrophy was so excessive that large doses of aconite did not materially reduce his heart's action.

Pathologically the case is of interest because it manifested cardiac hypertrophy of an extraordinary degree to meet arterial stress. The coronary vessels must have largely escaped to permit of this hypertrophy. Again, a time came when compensation finally ruptured in both the heart and large vessels, all of which yielded to the strain, although the peripheral arterioles remained narrowed by reason of fibrosis. In other words, the interesting point appears that during excessive peripheral resistance the heart and the arteries first increased in power side by side, but finally the large vessels relaxed, or dilated because of fatigue, as did also the heart, which is after all only a specialized part of the vessels.

So far as I know this point as to the possibility of rupture of compensation in the muscular fibers of the larger blood-vessels is a new one.

Given a case of cardiovascular fibrosis of this sort, in which there were repeated hemorrhages into the retina in 1900, no one would have supposed that life would last for so long as five years. Indeed, a case was seen by Dr. de Schweinitz and myself a short time before which impressed upon us the grave omen of Gunn's vessels with retinal hemorrhages, for in this case, which presented far less degenerative change in the peripheral arteries, sudden death took place during sleep within a few weeks. This latter case presented the type in which the vas-

cular lesions were less advanced than the changes in the heart, whereas the case I have just cited at length represented the type in which the heart escaped the touch of the arterial change, which was general throughout the system. In other words, the duration of life in these cases depends upon three important factors, namely, the escape of the heart muscle and its coronary vessels from the blight of degenerative change, the escape of the kidneys from fibroid change, and the escape of the cerebral vessels to such an extent that they can resist the pressure and so protect the patient from a fatal cerebral hemorrhage.

As illustrative of the prognostic value of Gunn's vessels and retinal hemorrhages I may quote some statistics collected for my book on the Practice of Medicine:

"Belt collected 419 cases, of which 72 per cent died within one year and 90 per cent of the remainder died within two years. The cases reported from Haab's practice by Possauer showed that none of the men applying to the clinic for treatment lived more than two years; of the women, 68 per cent died within the same period of time. Of private patients who could live comfortably, only 59 per cent of the men and 53 per cent of the women had died at the end of two years. Gruening collected 100 cases, none of which survived more than two years after retinal changes began, and Bull found that 69 out of 103 cases died within two years. Of the remaining 34, 17 died after a longer period, and 17 were alive at the time his paper was published. Harlan analyzed 40 cases with the following results: 33 ended fatally at various periods averaging four months; 3 lived a year after the discovery of retinal changes; 3 recovered, and 1 regained his eyesight, although the urine was albuminous at the end of two years. Miley traced 45 cases, and found the average duration of life to be less than four months from the time eye changes were first observed. One of his patients lived eighteen months and two fourteen months, but all the others died within a year."

Some of these statistics have been adversely criticized, but they point a way toward prognosis even if they are partly incorrect. I believe that we cannot reach definite conclusions as to the value of Gunn's vessels and hemorrhages into the

retina until we have statistics as to the associated state of the kidneys. If these organs are normal or approximately so, the prognosis is much better, for obvious reasons, than if they are diseased, in which case a duration of life of a few months is probable.

Finally, the points I wish to emphasize are as follows:

1. In cases of high tension due to fibrosis the nitrites can be of but little value, and the iodides with rest and massage are needful.

2. Cases of *very* high tension are usually those in which the heart escapes sufficiently to help maintain the tension.

3. As fibrosis in the peripheral vessels increases the muscles of the larger vessels undergo hypertrophy, as does that of the heart.

4. It is quite as possible for vascular compensatory hypertrophy to rupture as for the cardiac compensatory hypertrophy to do so.

5. This rupture of vascular hypertrophy often gives the heart a rest and permits it to recover from its fatigue, and so life is saved.

6. It is possible if the peripheral fibrosis is arrested for the vessels also to regain power and a general improvement to ensue.

7. The cardiac stimulants are not needed in these cases as much as rest and the skilful use of alteratives and vascular sedatives.

THE PURIFICATION OF WATER-SUPPLIES BY COPPER.

About two years ago there was issued by one of the bureaus of the Department of Agriculture a publication dealing with this question, in which it was recommended that the object be accomplished by the use of the salts of copper. Moore and Kellerman, the authors of this method, claimed that the addition of minute quantities of copper to the water at ordinary temperature resulted in the destruction not only of the common green algæ, but also of the pathogenic bacteria. A similar result could also be accomplished, it was claimed, by the suspension in the water of a quantity of copper foil, from which was given off suf-

ficient of the metal to produce a colloidal solution.

The daily and scientific press has discussed these observations pro and con, but nevertheless the question is still *sub judice*, and more conclusive scientific proofs of the value of the method must be gathered together before it can either be entirely condemned or adopted. Among the more recent investigations is one by a foreign observer, whose conclusions are of considerable interest. Major C. E. P. Fowler (*Journal of the Royal Army Medical Corps*, September, 1905) has subjected the method to a practical test, using in his experiments bacillus coli communis for seeding the water, because its resistant power is slightly greater than that of bacillus typhosus, and it may readily be recovered from the water, even if present in very minute quantity. Specimens of the ordinary London tap water, and also some drawn from the Thames, were employed. These experiments were very carefully carried out, and Fowler concludes that a contaminated water, standing for twenty hours in a copper vessel, even though a large quantity of copper foil be suspended in it, is not rendered safe for consumption by this treatment. Copper sulphate was found to act as a fairly efficient germicide for intestinal organisms in twenty-four hours in clear water containing about one part to 60,000 parts of fluid, or in turbid water containing one part to 30,000.

If an individual drank one quart of this weaker solution per diem, he would be taking about $\frac{1}{4}$ grain of the copper sulphate, of which the usual astringent dose is from $\frac{1}{2}$ to 2 grains. If long continued, this would probably harm the consumer of the water. The author has shown by his investigations that although the findings in the laboratory might prove correct and afford great promise, they would most likely break down in a practical application of the method. The procedure as originally advocated need not, however, be condemned, for it has been found of service in freeing a reservoir from the obnoxious growth of green algæ, and for this purpose a much weaker solution of copper sulphate is effective than is necessary to destroy pathogenic bacteria.—*Medical Record*, Oct. 21, 1905.

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Leading Articles.

THE TREATMENT OF SHOCK.

The THERAPEUTIC GAZETTE in this issue presents a symposium upon this important subject which cannot fail to prove of value to the active surgeon and physician. Most of our readers are probably familiar with at least some of the literature which has appeared in the last few years in regard to this important condition, which is met with not only by the surgeon after accidents or operations, but in a modified form by physicians who limit their practice to non-surgical cases. It is a mistake to suppose that the importance of recognizing the vasomotor disorder in shock has only been emphasized by the researches of Dr. Crile. Many years ago a number of physicians and surgeons were wont to point out that vasomotor relaxation was a characteristic of shock, and H. C. Wood, in particular, urged this view, in association with the idea that there is also a primary irritation of the pneumogastric centers which causes inhibition of the heart followed by a paralysis of these centers, which to some

extent accounts for the rapid pulse usually met with when shock is present.

These remarks are made not with any intent to diminish the importance of Crile's researches, but with the object of emphasizing the fact that the vasomotor conception of shock is by no means new. Largely as a result of Dr. Crile's investigations, which have been made chiefly upon lower animals, the idea has taken root amongst many practical surgeons that the use of strychnine for the purpose of combating shock is a useless, and perhaps even a harmful, procedure. Other surgeons, having had doubt thrown upon its value, are at a loss as to the proper methods which they should pursue. For this reason in this issue of the GAZETTE we have endeavored to get together the views of a number of skilled operators in order to present to our readers a mirror of the best practice of the day. Dr. Crile's opposition to the employment of strychnine seems to be based chiefly upon the fact that he has not found it to materially raise blood-pressure, and further he believes that shock is a condition largely dependent upon paralysis of the vasomotor center, which when paralyzed cannot functionate under the influence of strychnine.

We believe that Dr. Crile's experiments are of infinite value because they have called attention to this very important subject, but we also believe that his conclusions are too sweeping when he undertakes to condemn the use of strychnine in the condition under discussion.

Even if it be true that strychnine never acts as a competent vasomotor stimulant, it is a fact that it does act as a whip, irritant, or stimulant to the nervous system, and apparently wakens to renewed activity portions of the organism which are depressed either as a result of surgical procedures or because of the presence of grave disease. In many cases of pneumonia characterized by a profound fall of arterial pressure with a leaking skin, presenting a clinical picture not far different from that of shock, we have repeatedly seen large doses of strychnine produce results which could not be doubted as to their value. Even if it be true that in the physiological laboratory strychnine fails to raise arterial pressure, we still intend to resort to this drug to meet the conditions which we have described. In other words, when this state exists it is not only

proper to employ a drug which will have a selective affinity for those centers in the base of the brain which raise arterial pressure, but it is essential to employ a remedy which will stimulate the entire organism and so cause a reestablishment of aberrant or arrested function everywhere.

Within the last few years it has been proved conclusively by laboratory experiment both upon man and the lower animals that alcohol is not the circulatory stimulant which it was thought to be by our forefathers, and as a result of this there can be no doubt that the remedy is used less frequently as a circulatory stimulant than it once was. There can be no doubt that this more limited employment of so powerful a drug is advantageous. On the other hand, we think it would be the height of folly to utterly condemn the employment of alcohol in many conditions of circulatory and systemic depression. That it adds force to the body, when properly oxidized, has been proved beyond all doubt, and that it exercises a valuable therapeutic influence by equalizing the circulation, or reestablishing its equilibrium, cannot be doubted, provided, of course, that it is used in suitable cases and in suitable doses.

We have used this reference to alcohol in order to make our attitude concerning the employment of strychnine in cases of shock more easily understood, our conception of the matter being that strychnine has probably been abused in surgical practice in the past, but that this does not justify us in making the mistake of entirely stopping its employment.

Our advocacy of the employment of strychnine does not in the least degree tend to have us diminish the importance of other measures which are now considered of great importance, such, for example, as the intravenous, or hypodermic, injection of normal salt solution with or without the addition of adrenalin. There is no reason why these measures and strychnine should not be used together.

Still another point of importance, which we think is often overlooked, is the use of heat, not only for the relief of shock when it is established, but for the prevention of its occurrence. That it is wise to place hot bottles about a patient after a severe operation in the majority of cases cannot be doubted, and it also

cannot be doubted that these hot bottles should more frequently be applied about the patient during the progress of a surgical procedure. To apply them afterward may be of some benefit, to apply them during the operation is probably of greater benefit, particularly as operations frequently necessitate a degree of exposure of the body which is qualified to cause a great loss in bodily heat.

Finally, as has been so well pointed out by a number of surgeons, more particularly by Halsted and Bloodgood, it is of infinite importance that hemorrhage should be controlled to the utmost, chiefly by the use of hemostats. Repeated clinical observation has shown that it is not so much the duration of the operation as it is the degree of hemorrhage which tends to produce shock.

The very interesting investigations of Crile in regard to the production of shock by the irritation of peripheral nerves during operative procedures are, we think, of even greater importance than his investigations upon the influence of strychnine. It will be recalled that he has found that in those cases in which many nerve trunks are anesthetized operations can be performed without conveying to the nervous centers the powerful impulses which naturally are produced by grave surgical procedures.

To sum up, therefore, we may say that strychnine has been relied upon too much in the past for the purpose of combating shock, but that it is a mistake to cast it aside as a valueless remedy when face to face with this alarming condition.

H. A. H.

THE TREATMENT OF GASTRIC ULCER.

Without doubt gastric ulcer is far less prevalent in this country than it is in England, and as is well known, it affects women far more frequently than men. Within the last few years it has been claimed by surgeons that the disease is essentially an affection which should be turned over to them for treatment, and in support of these views they have advanced cases of hemorrhage and perforation, chiefly the latter, in which life has been saved, and the condition cured by surgical interference. It would seem almost certain that active surgical interfer-

ence is not indicated in cases of severe hemorrhage, first, because the very existence of the hemorrhage makes the case unfavorable for immediate operation, and secondly, because the mortality in cases which suffer from hemorrhage is not high, being only 2.1 per cent, according to Russell. Further than this, the operation which is commonly performed in cases of gastric hemorrhage from ulcer is a gastroenterostomy, which is not designed to stop bleeding already in active progress, but to prevent further bleeding. In cases in which perforation has occurred immediate operation should be resorted to unless the patient is too profoundly shocked to permit of it, the best results being obtained in those cases which are operated on during the first twelve hours after the occurrence of perforation.

Our attention has been called to this matter by an interesting and able paper contributed to the *Boston Medical and Surgical Journal* of September 21, 1905, by Dr. Frederick C. Shattuck, of Boston, who tells us that he has modified his methods of treating gastric ulcer very materially within recent years, and one of the evident causes for his modification is the fact that he himself has suffered from two attacks of this condition. Thus he tells us that seven years ago he underwent a fast of thirteen days in the hope of curing the ulcer, without satisfactory results. In other words, he does not believe at the present time in the prolonged starvation treatment. On the other hand, the method of treatment which he now employs has given him such excellent results that he has come to differ from surgeons who believe that this malady requires surgical interference, and he believes that cases in which the pain is so persistent and the hemorrhage so frequent and recurrent in spite of medical treatment as to justify operation are, in his experience, excessively rare. In the only case in which he advised operation for gastric hemorrhage no ulcer was found, the blood coming from the whole mucous membrane. His present view is summed up in these words, namely, that "cicatricial contraction at or near the pylorus causing dilatation and perforation are the only features of peptic ulcer which seem to him to clearly demand surgical treatment." The method of medical

treatment which he employs will be found in our Progress columns of this issue.

Since this editorial was written an important series of papers upon this subject has been presented at a meeting of the Section in Medicine of the College of Physicians of Philadelphia, the medical aspects of the matter being presented by Dr. Frank Billings of Chicago, and Dr. J. Dutton Steele of Philadelphia, while the surgical aspects were presented by Dr. Brewer of New York, and Dr. Deaver of Philadelphia. As a result of this symposium it may be stated that the following conclusions have been reached:

First, that operation for gastric hemorrhage during the hemorrhage is futile, for it is impossible to find the bleeding point, and the operation only serves to increase shock. A single hemorrhage does not necessarily indicate operation, but repeated hemorrhages indicate operation in the interval, the operation being a gastroenterostomy to permit the healing of the ulcer. Cases of undoubted gastric ulcer in which the symptoms persist for a period of from six to ten weeks under competent medical treatment should, as a rule, be subjected to operation.

FRESH AIR IN THE TREATMENT OF DISEASE.

The title of this editorial is so trite that it seems almost homely in its wording, but nevertheless there can be little doubt that physicians are not sufficiently alive to the necessity of providing patients with plenty of fresh air, whether they be suffering from acute or chronic illness. The very prevalent idea that infections of the respiratory and alimentary systems depend in large part upon exposure to cold causes the laity to be fearful of a plentiful supply of fresh air, and the result is that the vital resistance of the patient is very frequently materially diminished by breathing a vitiated atmosphere. The very noteworthy results which have been obtained in the treatment of pulmonary tuberculosis by the so-called outdoor method give us a clear conception of the very great benefit which fresh air may produce in patients who are suffering from a disease heretofore considered incurable. As a matter of fact, fresh air in plentiful supply to the patient who

is suffering from pulmonary tuberculosis is only of benefit in that it enables the vital processes to be carried on in the best manner possible, and so permits the system to combat the local pathological lesion.

In the treatment of the diseases of children, in which, on the one hand, we have extraordinary reparative power, and on the other an exceedingly delicate organism to deal with, it is still more important that the quantity of fresh air supplied to the child should be very great, and by the words "very great" we mean more than is ordinarily obtained, even in the sick-rooms of the well-to-do. The extraordinary rapidity of recovery on the part of sick children when they are moved from the city to the seashore depends in larger degree upon the purity of the atmosphere than upon any peculiar factors which it may contain.

Our attention has been called to this matter by a lengthy editorial in the *British Journal of Children's Diseases* for September, 1905. It is illustrated with pictures which indicate how, even in the large cities, children may be moved from the wards of hospitals on to fire-escapes and balconies, and there obtain fresh air and sunshine in a much more effective manner than they could in rooms which are artificially ventilated. We are told that the Northeastern Hospital for Children in London has provided plentiful accommodations of this kind for its inmates, and that the results have been extraordinarily beneficial. It will be remembered that during the past winter Dr. William Perry Northrop, the well-known specialist in diseases of children in New York, wrote a paper in which he strongly advocated the building of roof gardens, or roof play platforms, on the houses of the well-to-do in cities, in order that the children might breathe an atmosphere less laden with dust than that of the streets, and obtain an amount of sunshine which otherwise would be impossible. At the various resorts in Europe and America, where tubercular patients are treated in the open air, sheds and covered chairs are so built or arranged that the patient is protected from the wind, and is enabled to lie in bed for the greater part of the day bathed in sunshine, even when the temperature is far below the freezing-point. There can be no doubt

that in nearly all respiratory affections of children and adults some modification of this plan of treatment is advantageous, and we believe that the careful physician can, with a little thought and ingenuity, provide most of his patients with these two great curative agents—sunshine and fresh air.

SCOPOLAMINE-MORPHINE ANESTHESIA

During the last few months the profession in this country and abroad has been deeply interested in the question of the value of injections of scopolamine and morphine for the production of anesthesia for surgical purposes. In some instances the doses of morphine which have been recommended have been quite small and the quantities of scopolamine most moderate. Under these circumstances the procedure has consisted in giving an injection of from 1/200 to 1/100 of a grain of scopolamine with 1/16 of a grain of morphine three hours before the operation, repeating it one hour before the operation, and again immediately before the operation. In other instances larger doses have been employed much less frequently, and in still others the surgeon has used these drugs more or less freely and followed them by the administration of ether or chloroform. It is probable that the most satisfactory results are obtained by the latter method. It would appear that the advantages consist in the readiness with which the patient takes the anesthetic, in the avoidance of disagreeable symptoms during the early stages of etherization, and in the avoidance of most of the disagreeable sequelæ of anesthesia as it is commonly produced by ether or chloroform alone. These advantages are undoubted, and we know of no reason why morphine and scopolamine should not be employed in certain cases when these symptoms are prone to be not only annoying but dangerous, as in the case of abdominal, thoracic, and cephalic operations.

It has been thought by some that scopolamine is a dangerous drug, but we believe that this view of its powers is quite erroneous. Many months ago it was pointed out by Dr. Lott, in the columns of the *THERAPEUTIC GAZETTE*, that cases of the morphine or alcohol

habit might be most successfully treated by the administration of doses of hyoscine which were far in excess of those which had heretofore been considered safe, and the writer of this editorial has, since that time, in a considerable number of cases administered as much as 1/100 of a grain of hyoscine by the hypodermic needle every hour or two until as much as 12/100 have been taken in twenty-four hours without the production of any symptoms which could in any way be considered dangerous. It is true that the patient becomes somnolent and is aroused with difficulty, that he has a low muttering delirium and sometimes develops delusions, but these symptoms pass off in the course of a day or so and the condition of the patient is ultimately better. Doubtless the casual reader will at once state that an experience with these large doses of hyoscine cannot be used as a guide to the administration of full doses of scopolamine, but in this the casual reader is in error, for scopolamine and hyoscine are practically one and the same drug. Indeed, the hyoscine which is official in the new United States Pharmacopœia, which has just appeared, is said to be "the hydrobromate of an alkaloid identical with scopolamine obtained from *hyoscyamus* and other plants of the *Solanaceæ*," and as a matter of fact we understand that most of the hyoscine and scopolamine hydrobromide is obtained from the seeds of *hyoscyamus* or *stramonium*. Some of it is also obtained from *scopola*, and we may fairly consider that the physiological action of scopolamine and hyoscine is identical, although it has been thought by some that scopolamine was somewhat more sedative than hyoscine. There is no justification, we believe, for this view, unless it be that hyoscyamine may have been used in error for hyoscine, and hyoscyamine has not, of course, the sedative properties that hyoscine possesses.

From a careful reading of the literature of this subject, as it appears in American and foreign contributions, we believe that the value of this method can be approximately summed up in the following words, namely, that in some patients, particularly in those who are nervous or in those who are known to take ether and chloroform badly, the scopolamine-morphine method alone, or pre-

ceding the ordinary anesthetics, should be considered as advantageous by the surgeon—in other words, that it will prove of value in selected cases. That it is useful or advisable in all cases would seem doubtful. In other words, the scopolamine-morphine method has a sphere in which it does good work, but it is not of a nature which gives it universality of application.

DIGITALIS AND ITS DERIVATIVES.

There are few drugs which occupy a more important position in the physician's armamentarium than *digitalis*. Its great power, the critical conditions which it is often called upon to meet, and the excellent results which frequently follow its skilful administration, all cause the physician to regard it as one of his best aids in the treatment of certain types of disease. Like all other remedies which possess much power for good it can, if abused, exercise harmful influences, and as it possesses a powerful influence over certain vital processes it is not difficult to understand the fact that patients who have taken too much of it may present symptoms which are even more alarming than those which existed prior to its administration. Then, too, *digitalis* is a drug which is known to exert what is known as a cumulative effect—not in the sense that the drug itself accumulates in the body, but in the sense that as it is prolonged in its action, its frequent administration causes an overlapping of the effects of individual doses until, at the end of a number of days, or weeks, the patient is affected not by the diurnal quantity which is given but by the doses which have been administered many days before.

All these facts very clearly indicate the additional fact that it is essential for the skilful use of *digitalis* that a preparation of it should be employed which is in every sense standardized and tested, being neither more nor less active than that which is commonly employed by physicians. In an endeavor to obtain such a constant product physicians have tried to use the various glucosides and other active principles which can be obtained from *digitalis* leaves, such as *digitalin*, *digitonin*, and *digitoxin*, and numerous

contributions to medical literature have been made with the object of proving that these active principles really represent the true value of the drug. As a matter of fact, large experience has proved, to the satisfaction of most members of the medical profession, that these isolated substances do not represent the full therapeutic value of digitalis leaves, and as a result many physicians still resort to the fluid extract, the tincture, or the infusion, when they are called upon to treat diseases of the circulatory system which demand the use of this drug. The popularity of the infusion is undoubtedly on the wane, since of all the preparations of digitalis it is the one which is most prone to disorder the stomach, although there are some reasons for believing that it possesses diuretic properties which are not found in the alcoholic preparations. Even these galenical preparations of digitalis, however, often fail to produce the satisfactory result which is desired. In some instances they produce little or no effect, in others an excessive effect, and in some the influence which is exercised is manifest but not favorable. A reason for this exists in the unavoidable variation which occurs in the strength of the digitalis leaf as it grows in different places. Whether the English, American, or German leaf is employed, there is very considerable opportunity for variation in physiological activity to exist, and as a result the physician is often disappointed in finding that the dose which he has ordered does not meet the needs of the individual case. As is well known to our readers, digitalis is a substance which does not lend itself to chemical analysis, and therefore it is impossible for manufacturers of fluid extracts or tinctures to assay it and determine its actual strength. The consequence is that it is impossible for a physician to obtain a standard preparation of this drug unless it has been subjected to a physiological test by those who are skilful in studying its effects upon animals. With such a preparation fairly certain results are obtained if it is administered skilfully.

Our attention has been called to this matter once more by a communication to the *British Medical Journal* of September 16, 1905, by Dr. Hardman, who points out that in his experience some specimens of digitalis are very deficient in active principle and exceedingly inert.

He also adds that digitalin, which is a term rather loosely applied to a complex substance, does not always exercise the effects which are desired, and as an illustration of the lack of reliability of this product he tells us that he recently ordered from a first-rate wholesale house a number of pills containing one-fiftieth of a grain each of digitalin. The first night he took one, the next two, the next four, and the next five; in other words, the equivalent of one-tenth of a grain of digitalin in the last dose, without any effect whatever being produced. He then proceeded to take seven in one night, and the next night ten, or in other words, one-fifth of a grain of digitalin. The only result of a dose of ten pills was some gastric discomfort, but not the least effect on the circulation. On the other hand, he found that when he took a comparatively minute dose of what is known as Nativelle's digitalin, he got an effect which was so marked that he did not care to go beyond this dose, and on further inquiry he discovered that the first digitalin was made in Germany, and that the so-called Nativelle's digitalin was really digitoxin. If this is not confusion worse confounded, what is?

The second cause for our renewed attention to this matter is a recent clinical experience in which digitalis could not be taken by the mouth, yet in which it was manifest from the condition of the heart that it was the drug required above all others. In this patient the hypodermic administration of the tincture produced little physiological effect, caused great pain, local induration, and much subsequent tenderness, because in all probability the juices of the tissue precipitated the ingredients of the digitalis, which are insoluble in a watery solution. Under these circumstances the new preparation, known as digitalone, which is physiologically active in doses varying from 5 to 30 drops, was administered hypodermically, producing excellent results and no outward effect. As this digitalone not only possesses these advantages but is tested pharmacologically to determine its physiological activity, it is manifest that it possesses marked therapeutic advantages, and we shall be glad to hear from any of our readers who may employ it as to the results they have obtained from its use.

THE SURGICAL TREATMENT OF JOINT RHEUMATISM.

The modern tendency to transfer the treatment of diseases which for centuries have been regarded as essentially medical to the surgeons is well exemplified in an extremely interesting article by Gurich (*Wiener klinische Rundschau*, No. 39, 1905), who thinks he has discovered the cause of joint rheumatism and has succeeded in curing it by a rational application of surgical therapeutics.

Observation of many cases has convinced him that joint rheumatism is an infectious disease caused by a probably specific though not recognized organism, effusion into the joint being incident to the circulation of these microorganisms in the blood. In rheumatism, particularly of the recurring type, which because of its resistance to treatment has given rise to such a vast host of remedies for its cure, there is a point of infection which Gurich believes is located in the tonsils. He traces the paroxysms and recessions to tonsillar conditions which are not necessarily manifested by gross clinical symptoms, and he has been able to accomplish radical cure by removing the foci of infection either by splitting and cleaning out suppurating lacunæ or by performing partial removal of the tonsils.

The analogy of joint affections of the rheumatic type to those incident to the ordinary infecting microorganisms, such, for instance, as the gonococcus, is so close that the theory advanced by Gurich as to the infectious nature of the rheumatism itself is generally accepted. There is certainly a form of joint inflammation which can be traced directly to tonsillar infection. That all joint inflammations commonly classed as rheumatic are dependent upon infection received through the tonsils remains to be demonstrated. It is, however, of distinct service to have attention called to this seat of infection in case of either mono- or polyarticular inflammations, since it has been proven beyond doubt that with the removal of the focus these joint inflammations may clear up promptly and permanently.

Whatever be the etiology of joint rheumatism the tendency of the day is to treat the local affection in accordance

with surgical principles—i.e., to open and irrigate all joints which develop a degree of intra-articular tension so extreme and persistent as to threaten the future usefulness of the joint.

LOCAL ANESTHESIA IN THE RADICAL CURE OF INGUINAL HERNIA.

Though it has been abundantly demonstrated that a radical cure for hernia can be accomplished under local anesthesia, administered in accordance with modern methods, and CUSHING has shown that after dividing skin, superficial fascia, and external oblique the ilioinguinal nerve may be reached and infiltrated, thus enabling the surgeon to reduce the pain of further manipulation to a minimum, the method has never become popular, partly because the infiltration in itself is time-consuming, but in the main because even though the skin, superficial fascia, and deeper parts be infiltrated and the ilioinguinal, the iliohypogastric, and the genitocrural nerves be found and treated directly, as soon as the parietal peritoneum is reached, all manipulations with this highly sensitive structure, excepting those conducted with the utmost gentleness, are excessively painful. Nor can this pain be subdued by any form of cocaine or eucaine application. It is therefore interesting to note that Bodine strongly advocates local anesthesia as a routine procedure, basing his judgment in this matter upon an experience of 300 cases. He uses a solution made up by dissolving one grain of cocaine in an ounce of sterile salt solution. This he employs for infiltrating the skin. For subdermic operations a solution of half this strength is employed. It is stated that the solution should be made fresh, as cocaine rapidly develops a fungus, in a few hours is potentially septic, and in a few days is distinctly so and will produce suppuration. It is stated that the solution may be boiled sufficiently long for sterilization without detriment to its anesthetic value, though the absolute length of time is not given. The author notes that pain results whenever a blood-vessel is divided, and that this is multiplied by each grasp of artery clamp and ligature.

As to the method of operating, after infiltration and section of the skin and

superficial fascia and the checking of bleeding the aponeurosis of the external oblique is divided over the position of the internal ring, and the ilioinguinal nerve is found and cocainized before carrying the incision into the external ring. It is stated that the iliohypogastric is not always found, but if found and cocainized it greatly assists toward painless operation. If search is fruitless the margins of the internal ring and adjacent substance of the conjoined muscle are infiltrated with 1/10 of one-per-cent solution. Along the central line of the long axis of the protruding hernia a line of infiltration with the same solution is made. The neck of the sac is infiltrated, dissected away from the underlying cord, ligated, and amputated. The genitocrural is now sought, and if found and cocainized the operation can be completed in any manner the operator prefers without additional cocaine and without pain. If the nerve is not found the sac is dissected away from the cord by clean snips of the scissors from above downward.

The author calls attention to the fact that he uses not more than half a grain of cocaine, and that it is intermittently injected in the course of an hour. Although his wide experience entitles his opinion to great weight, it is evident that this method is in the first place time-consuming, and in the second place that in many instances, even in his own hands, it has not produced complete anesthesia.

Perhaps the most noteworthy observation in the article is to the effect that cocaine infiltration encourages union by first intention, and the record of 300 infiltration cases without a single suppuration is truly remarkable.

On general principles surgeons prefer eucaïne to cocaine because of its less toxic quality, its almost equal anesthetic power, and the fact that its solutions can be boiled and therefore rendered perfectly sterile. They all employ the local anesthetic method under certain circumstances, notably in strangulated hernias when the general condition is such as to render the administration of ether or chloroform distinctly inadvisable. Probably all have made an attempt to perform radical operations by local infiltration and have succeeded, but not as a rule to

the satisfaction of either themselves or the patients.

Doubtless Bodine's experience will encourage many to make a renewed trial, though his communication is not convincing either as to the complete anesthesia which he has attained or as to the wisdom of prolonging and complicating what is usually a simple, easy, and quick operation.

REFLEX ANURIA.

It will be remembered that the distinctly lessened mortality incident to nephrectomy has been attributed to the improved diagnostic methods, by means of which not merely the presence but the functional activity of the kidney which was supposed to be healthy could be determined before operation. It has been shown that the lessened mortality is in reality due rather to the natural tendency observed in all branches of surgery toward early operations, thus not only greatly lessening the technical difficulties, but obviating the complications and sequelæ so common when, for instance, tuberculous kidneys have been allowed to become extensively degenerated. Those most enthusiastic for the modern methods of diagnosis have not as a rule claimed for it a prognostic accuracy so infallible that the surgeon is enabled to determine with certainty for or against operation, though it will be remembered that Albarran has stated that no patient subject to nephrectomy after a careful preliminary study of his urine by modern methods should die of renal insufficiency.

That even the most carefully conducted tests fail in clinical experience is well shown by a case reported by Jenckel. His patient, about fifty-four years old, had been subject to nephrorrhaphy for the cure of a wandering kidney, which, however, was probably tubercular at that time, since there had been a previous history of pain with the passage of bloody urine. Following nephrorrhaphy several fistulæ formed. Cystoscopic examination showed normal urine from the left kidney and a purulent secretion from the right. Ureteral catheters corroborated this finding, whilst the secretion from the two sides examined carefully showed both microscopically, bacteriologically,

and chemically that the left urine was normal. Moreover, the freezing-point of the urine from the left kidney offered a further proof of the absence of lesion on this side. The purulent urine on the right side contained many tubercle bacilli.

Following nephrectomy, which was somewhat difficult, there was total suppression, this in spite of abundant hypodermoclysis. Sounding of the left ureter showed it to be patulous. Death followed suddenly without uremic symptoms on the fifth day. Microscopic and macroscopic examination of the left kidney was entirely negative. The kidney pelvis was free of urine.

In this case there was apparently a reflex inhibition of secretion incident to the operation on the right side, a complication which could not have been foreseen, and which a confidence in modern methods of diagnosis would seem to have rendered impossible. Details as to the length of operation and the anesthetic administered are lacking. Nor is the simple statement of reflex anuria sufficiently comprehensive to explain exactly what took place in this instance. It is in such cases that splitting of the kidney capsule or decortication may prove of life-saving value.

Reports on Therapeutic Progress

THE VALUE OF LEAD AS AN EXTERNAL APPLICATION IN INFLAMMATION.

A letter on this subject is published in the *London Lancet* of September 16, 1905, the writer being Mr. H. P. BERRY. When reading the accounts given in modern surgical text-books of the various treatments of inflammation he has been surprised to find no mention of the use of lead as a local application. To those who are not in the habit of thus using lead lotion it will be a surprise to find how this application appears to modify many inflammatory processes. The author is in the habit of applying lead lotion (he generally employs it tepid) on lint covered over with oiled skin to lacerated fingers and other lacerated and bruised wounds, to inflamed joints after injury, to inflamed bursæ, patellæ, and to large bruised surfaces, particularly if suppura-

tion is feared or threatened, and there is no doubt that the healing and absorption proceed as though the inflammatory action was in some way checked by the application. When there is evidence of inflammation spreading upward from a wound hot fomentations to the wounded surface and lead applications to the reddened surface of the skin invariably markedly assist in lessening the spreading inflammation. It may be not unlikely that this remedy is frequently made use of, but our text-books of the present day are so full of the skilful discoveries of modern pathology and bacteriology that there is perhaps a danger of some of the older remedies being passed by unless their method of action can be explained and made to fit in with present-day explanations founded upon bacteriological research.

In view of these researches the author does not pretend to suggest how lead acts when applied locally in these cases, but it appears safe to assume that in some way it assists the tissues in resisting the onslaught of whatever may have caused the inflammatory process. The recent knowledge which the study of bacteriology has afforded has so centered attention upon the important action of bacteria and their effects upon the tissues, and the supreme importance of combating these, that the possible importance of efforts being made to assist the invaded tissues to exert to their full extent the undoubted power which they possess to resist and to overcome the inroads made upon their defences has, perhaps, been thrown into the background. It is purely upon these defences and upon the power and opportunity which the tissues may possess for exerting to the full their defensive and protecting action that the success or otherwise of their defensive warfare against invasion must depend. The object of the author's communication is to draw attention to what appears to him to be the importance of paying attention to the aiding and strengthening of this defensive action, which is perhaps apt to be neglected in the modern rush to prevent or to destroy the hostile invaders, and it certainly seems that in lead applications we possess one method which is at any rate worthy of mention and of sufficient value to make us pause to consider whether it is not worth while to pay

some little more attention to the possibilities of measures which may assist the defensive powers with which nature has provided the tissues, and which, all-important as they are, appear to have received in modern investigation less prominence than they deserve.

THE TREATMENT OF GONORRHEAL RHEUMATISM.

Gonorrheal rheumatism represents one of the most unwelcome complications in the domain of genito-urinary surgery. It is rebellious and uncertain rather than actually dangerous, but in order to appreciate its true character the fact should always be borne in mind that it is a systemic infection, the source of which is genito-urinary. The infection may be, and probably is, a mixed one, but it bears no relation whatever to acute inflammatory or to muscular rheumatism. Just what rôle the gonococcus itself plays has not been fully decided, but it is assumed by many capable observers that the local inflammatory reaction which arises from its presence in the mucous membrane allows other germs to enter the system.

Eugene Fuller (*Annals of Surgery*, June, 1905) now brings forward the claim that gonorrheal rheumatism, so-called, can exist independently of the gonococcus, and that another agency must be present which can play the minor rôle assigned to the gonococcus of allowing other germs to enter the system from a genito-urinary source. If so, then the common appellation is a misnomer.

The author of the paper referred to has made a special clinical study in order to determine whether the systemic infection in these cases entered from some specific source or from the general mucous surface. In the male this special focus he believes to be represented by a seminal vesiculitis. In fifteen cases of gonorrheal rheumatism, the only existing gonorrheal lesion in twelve was found in these organs. He then determined to remove this focus by operative means, and thus to check the disease. This he did in four cases. Almost immediately the active symptoms of the trouble subsided, the joint movements being possible in from twenty-four to forty-eight hours, and the patients were up in two weeks.

These are striking results and apparently demonstrate the correctness, as far as they go, of the author's theory. But the operation is a most difficult one, as the writer admits; it depends for its success largely on the sense of touch, since instrumental exposure of the organs is a dangerous procedure. Hitherto this region has been looked upon as quite inaccessible, and has, therefore, not been made the subject of any extended surgical interference. The success attained by Dr. Fuller in this field will undoubtedly stimulate others, and reports from these investigators will be awaited with interest.—*Medical Record*, Aug. 26, 1905.

THE EMPLOYMENT OF DRY CUPS IN THE TREATMENT OF HERPES ZOSTER.

In the *New York Medical Journal* of August 19, 1905, LEALE advocates this plan of treatment. He says that as soon as the disease is recognized the patient should be put to bed and given a laxative; a fever prescription may be given, and a light diet, preferably of milk, enforced.

The author thinks in most text-books and treatises on herpes zoster too little stress has been laid on applying counter-irritation over the roots and trunks of the nerves involved. This seems to him by far the most important part of the treatment, for by this means we can lessen the congestion about the nerve roots and trunks of the nerves, and also hasten absorption of the inflammatory exudate, going directly to the seat of the trouble and thereby favorably affecting all the symptoms. The method which has proved most successful in the hands of the author is the application of dry cups. This, if properly done, will be found of great service. The dry cups should be applied over the ganglia of the posterior roots and over the points of emergence of the nerves involved. In properly applying the cups it is necessary to have at least a general idea of the location and the relations of the spinal nerves, and the areas which they supply. In this connection it is well to remember that a ganglion is developed on the posterior root of each of the spinal nerves, and that they are situated in the intervertebral foramina external to the point where

the nerves perforate the dura mater. This is the case with all the spinal ganglia, with the exception of the first and second cervical, the sacral, and coccygeal, which show slight variations in locations, which variations for all practical purposes in this connection can be disregarded.

In locating the nerves and roots involved the sensory symptoms (the pain and hyperesthesia) and the site of the eruption are our guides. H. Head has carefully determined the relationship between the areas of the eruption and the corresponding posterior roots.

Having determined the location of the posterior root or roots involved, we are ready to proceed with the dry cupping. This is done just to the affected side of the spinous processes of the vertebræ over the area determined, several cups being applied and allowed to remain long enough to insure their maximum suction power. After the first set is removed, they can be reapplied if deemed necessary. Then we proceed to apply a few cups to the location of the emergence and over the course of the nerve or nerves involved. In this we are guided by the seat of the pain and hyperesthesia and by the location of the eruption. If the cups are applied carefully, and over the areas accurately determined upon, we may expect in most cases a shortening of the duration of the disease and a great amelioration in the severity of all the symptoms, and especially in the pain, which in some cases has immediately and permanently disappeared. The author makes it a practice to cup early in the disease, in many cases before the eruption has appeared, when of course it is difficult or impossible to distinguish it from a simple neuralgia. He usually finds it best to repeat the cupping once every twenty-four hours, and preferably just before the patient settles down for his night's sleep. In this way a nocturnal paroxysm of pain can often be prevented, and a good night's rest secured, which otherwise would have been impossible.

This method of procedure in his opinion, gleaned from experience in a number of cases, has proved most satisfactory, far more so than counter-irritation by means of the Paquelin cautery or the application of the continuous current.

In resorting to this procedure the value of local treatment must not be lost sight

of, for it is very essential to protect the area of skin involved, especially preventing the rupturing of the vesicles and their subsequent infection. This latter should never occur if proper care is exercised. Collodion, used by so many physicians for this purpose, forms an excellent protection to the eruption. If the vesicles rupture the author has found a powder most satisfactory, and his preference has been for one composed of powdered oxide of zinc and powdered starch equal parts, and three per cent powdered boric acid. Powdered opium may be added to this, but he doubts if it is of any great service. Over whatever application is made a sterile cotton dressing should be applied, and the whole held in place by a retention bandage.

After the attack is over, general tonics, a liberal diet, and careful hygienic measures are usually indicated. In some cases we will have to treat a rheumatic condition, in others malaria, in still others tuberculosis, etc., each of which will have its own indications.

In this article the author desires especially to emphasize the fact that the careful and scientific application of dry cups has proved of great value in his hands in the treatment of the cases of herpes zoster occurring in the course of his practice and clinical work, both in shortening the duration of the disease and in ameliorating the symptoms.

PRELIMINARY COMMUNICATION ON THE TREATMENT OF ARTERIOSCLEROSIS.

HIRSCHFELD writes under this title in the *Australasian Medical Gazette* of July 20, 1905. In is the author's intention to lay before us a short résumé on a mode of treatment of arteriosclerosis which has given him favorable results during the last two and a half years. This method is the systematic employment of hot baths. Arteriosclerosis, we all know, is a degenerative process affecting the walls of the arteries and resulting in the impairment of their chief functions—elasticity and contractility. The causes of arteriosclerosis are mainly (a) advancing age; here it simply represents the sum total of labor done and injuries suffered during life; (b) the presence in the blood of poisonous substances, as alcohol, lead, gouty, syphi-

litic, malarial, and other poisons, or of an excessive quantity of the ordinary waste products; (c) habitual overpressure, either the result of long-continued and excessive strain, or of the irritative presence of those poisonous substances. Arteriosclerosis is the inherent penalty of "strenuous life."

No treatment whatsoever will avail against the anatomical lesion already present where fibrous growth has taken the place of the elastic and contractile elements; but we can strike at the injurious factors which, in the first instance, gave rise to the disease, and are continuing to operate in the same direction. The effect of the hot bath upon the patient suffering from arteriosclerosis is fourfold:

1. The hot bath alters the distribution of blood-pressure by unloading the internal organs and increasing the vascularization of the skin; hence it affords prompt relief in many of the various cases of pain associated with internal gout, that frequent source of arteriosclerosis. This altered distribution is also probably the reason why the sleeplessness so often troublesome in arteriosclerosis becomes after a short time manageable without the further aid of drugs. He feels sure, however, that this vascularization of the skin is not a purely derivative effect of the hot baths, but also an irritative one. It acts like a huge blister. That such is the case became evident when the author used the hot bath in arteriosclerosis patients with neurasthenic symptoms. Here the abnormally enhanced sensory perception is evidently still further increased by the application of heat over the whole surface of the body by too hot a bath. In this, as in many other cases, it was the untoward effect of the hot bath which pointed the way to its proper applicability.

2. The hot bath increases combustion. The temperature of the body rises during the hot bath. The author generally had the temperature taken immediately after the hot bath, and subsequently every half-hour for the next four hours. This rise takes place in subjects both with a normal range of temperature and in fever cases, where the balance of temperature is disturbed. The rise depends, only to a certain extent though, upon the warmth of the water and length of immersion. After a bath of 104° , lasting

ten minutes, the rise of the body heat amounts to between one and two degrees F., and extends for about two hours; the temperature returning gradually to the former level. The rise is, of course, due not to an increased production of heat, but to increased storage and direct warming of the blood. But no matter what it is caused by, the increased temperature of the body means increased metabolism, an increased oxidation of the waste products and other substances, and an increased respiratory exchange. This probably accounts, partly at least, for the loss of weight following upon the hot bath.

3. The hot bath increases the elimination of waste products. It is followed, though not immediately, by an outbreak of perspiration. If the water has not been too hot, not above 104° , there is no heavy sweating, but the skin becomes moist after twenty or thirty minutes, and continues so for about one and a half hours. If the temperature of the bath is raised to 106° or 108° , heavy sweating results. This sweating, no doubt, is the effort of the system to regain its former level of the temperature. It is, therefore, generally an advantage to send the patient to bed after the bath, in order to keep up a gentle perspiration for a lengthy time, although in Australian climate during the summer months the patient gets rather impatient of bedclothes.

4. The hot bath, by opening the channels of the skin, reduces the pressure of the blood in the same manner in which the pressure of water running from one tap is lowered as soon as another tap is turned on. In former times it was customary to reduce the pressure by repeated venesection, nature showing the way by the occasional bleeding from the nose that sometimes relieves arteriosclerosis patients. The hot bath bleeds the patient into the skin. The pulse gets softer, more frequent, and often dicrotic. While the determination of the blood to the skin lasts the low temperature continues; hence by giving the bath at bedtime the warmth of the bed keeps the skin vessels dilated and extends the effect. How long the fall of blood-pressure continues as the result of even a few hot baths became apparent when the author employed them in the treatment of other diseases where the original blood-pressure was not excessively high, as in arteriosclerosis.

sis. The long continuance of the low pressure was a most unwelcome symptom, which had to be treated in itself. At any rate the systematic employment of the hot bath in arteriosclerosis daily or several times in the week at last establishes an increased vascular habit of the skin, thus permanently lowering the pressure.

The hot bath ought to be prescribed with as much exactness as a dose of morphine. The hot bath is a potent remedy capable of doing much good and a great deal of harm. Even the increase of one degree brings about unpleasant effects in some cases. In every instance it is necessary to ascertain exactly the reaction of the individual. One may safely begin with a temperature of 102° if the patient is not above 55 or 60 ; in women it is safer to begin at 100° . The time of immersion should not be less than ten minutes, although the author rarely had to exceed that time. The determining factor in the management of the patient is the condition of the left heart, the quality and loudness of the first and second aortic sounds. Without a vigorous left heart the hot bath must be used with caution. This was impressed upon the author whenever he had occasion to use it. He employed the hot bath in a variety of conditions in pneumonia, meningitis, dengue, typhoid fever, nephritis, and the treatment of heart disease. The most favorable results were obtained in pneumonia and dengue. But the author warns most distinctly against the indiscriminate use of the hot bath where there is not a good systemic pressure and a vigorous systolic output to start with. While these two conditions obtain in arteriosclerosis favorable results will follow the treatment indicated. He frequently, as many others before him, has used hot baths in chronic interstitial nephritis with its high tension pulse, and has found it to fail. The explanation, in the light of the experience gathered, seems to be this: The patient generally comes under treatment not on account of his kidney trouble, but just at the time when the compensatory effort of the heart, maintained for years, begins to fail. As long as the heart compensates the shrinking filtering area of the kidneys by increasing driving force, the patient does not become aware of his trouble. At last the heart begins to fail

under the strain of the high pressure and the poison, and we have to face a failing heart, although the pressure compared with normal conditions may be high yet. In these cases the hot bath, just as well as all the sweating procedures usually recommended, does direct harm by still further lowering the needful pressure.

The following statement requires some qualifications, but, the author thinks, covers many cases: Where digitalis is contraindicated the hot bath is likely to do good; where digitalis is indicated the hot bath should be given with caution or be left alone.

DIETETIC TREATMENT OF INFANTILE ATROPHY.

To the *Journal of the American Medical Association* of August 26, 1905, WENTWORTH contributes a paper on this topic. He states that the results obtained by feeding infants with infantile atrophy with human breast milk have been perfectly satisfactory in his experience. The improvement in general condition and the gain in weight often begin within a few days, certainly within two weeks, and continue uninterruptedly, so far as they are dependent on digestion, so long as the breast milk is furnished in sufficient quantities. The gain in weight often exceeds that made by the wet-nurse's own baby previously. Whatever function or functions have been impaired, they are evidently capable of the most rapid recovery. The author's experience warrants him in saying that when such an infant does not gain on the average at least an ounce a day, the fault lies with the wet-nurse and not with the infant. The point which he wishes to bring out clearly is that these atrophic infants are just as able to gain in weight as any normal infant when they receive a suitable food, and that breast milk is the only food that can be uniformly relied on to accomplish this result. It need hardly be emphasized that if a breast milk is of poor quality and insufficient in quantity, it is no more suitable than any other poor food.

Naturally, when choosing a wet-nurse, one is selected whose baby is doing well. It is not necessary that the age of your patient and the age of the wet-nurse's baby should correspond. While

taking breast milk, atrophic infants frequently have several more or less watery and undigested movements daily, without any evident bad results. It does not seem to interfere with the gain in weight nor with their general condition. This is peculiar to breast milk. Such dejections, if associated with other methods of feeding, would be followed by bad symptoms. It cannot be denied that there are many objections to the use of a wet-nurse. The serious ones, which refer to contracting diseases by the infant, can be avoided. The others must be tolerated to some extent. It must be remembered that in these cases the family of the patient are discouraged and worn out with the care of the infant, and when they see almost immediate and marked improvement they quickly become reconciled to inconveniences and are willing to put sentiment aside. Wet-nurses can be controlled up to a certain point, and in this connection it is always a fatal mistake to encourage a belief by the wet-nurse that she is indispensable. If she is not satisfactory, another can be procured. It is a fallacy to suppose that one woman's milk is any more suitable for a given infant than another woman's, provided both milks are good, that the quantity is sufficient, and that no mechanical hindrance exists in the one case and not in the other. If the wet-nurse is made to understand that the place is hers only so long as the baby does well and she is satisfactory, it will make a difference in her behavior.

The author has rarely found it necessary to try more than two wet-nurses in a given case, but now that he feels so certain that good results will follow this method of feeding in cases of atrophy, he would persevere until a suitable wet-nurse was found, no matter how many he tried. The difficulty in making infants accustomed to the bottle take the breast is rarely serious. Persistently withholding other food for some hours will overcome their resistance. He has often found it necessary to allow the wet-nurse to retain the charge of her own baby. In such cases the wet-nurse's baby was fed on a mixture of cow's milk. It cannot be denied that one would rather not be burdened with the wet-nurse's baby, but, on the other hand, the care of her baby oftentimes reconciles her to the

position and helps to occupy her time. The possibility or probability that she will nurse her own baby can be avoided without much trouble.

In his practice, when cases of atrophy are brought to him for treatment, the author makes it a point to express his views to the parents on the relative values of different foods. They almost always object at first to the employment of a wet-nurse. Out of deference to their feeling, and because it is always possible that whoever has had charge of the feeding previously has not made use of mixtures appropriate for such cases, he tries mixtures of cow's milk for from two to three weeks and notes the results. If the improvement is not satisfactory he recommends a wet-nurse. He omits the preliminary trial if the infant's general condition does not warrant it. Thus far he has never had occasion to regret employing a wet-nurse. In many cases even a few weeks of the breast milk will produce such improvement in the weight, general condition, and digestive powers of the infant that it will be able to adapt itself to cow's milk mixtures if for any reason it becomes necessary or desirable to change.

THE ELIMINATION OF THE MOSQUITO.

The mosquito is so important a factor in the spread of disease that all measures which look toward its destruction are of interest. In the *Journal of the American Medical Association* of August 26, 1905, Dory states as his first proposition that efforts to prevent the propagation of the mosquito consist in abolishing or removing receptacles which contain water. This applies to both large and small ground depressions, swamps, etc., and to portable and stationary receptacles about buildings. The scientific, practical, and radical method of removing water in ground depressions is by drainage or filling in, and the use of petroleum oil in these instances cannot be regarded as a substitute for this purpose and should only be used as a temporary measure. In mosquito-infested districts our first action should be to remove, so far as possible, from dwelling-houses and other buildings, all sorts of metal, glass, and wooden receptacles for water. Cisterns and rain-water barrels should be employed with tight-fitting

covers. By having the center of these covers constructed of wire netting sufficient air is admitted. Roof leaders should be kept properly graded; otherwise parts of them may act as breeding places for the mosquito.

The crude petroleum is probably superior to the refined oil, and should be used in the proportion of one pint of oil to a water surface of about twenty feet in diameter—even a less amount of oil may be effective. This procedure should be repeated every two weeks. The method by which the oil destroys the larvæ or wigglers is probably not by a toxic effect, but by a mechanical one. The larvæ must come to the surface of the water for air at least every two minutes. If watched carefully it will be seen that the culex, or common variety, approach the surface of the water at right angles, with the tail uppermost, the air being taken in at this end, which is extended sufficiently above the surface. The anopheles larvæ may be distinguished from the culex at this stage, inasmuch as they do not lie at right angles to the surface of the water, but parallel to it, and receive the air by projecting the head above the water instead of the tail. It is probable that the oil thrown over the surface plugs up the delicate respiratory apparatus of the larvæ and practically suffocates them. This is largely corroborated by experiments. If a small amount of petroleum oil is thrown over the surface of the water in a glass jar containing larvæ, the latter will succumb in from ten to twenty minutes; toxic agents do not kill them with such rapidity, as careful investigation has proved. The odor of petroleum oil is either very unpleasant or injurious to the winged insect. It has frequently been noticed when petroleum has been used in swamps in large quantities that the number of mosquitoes abruptly diminishes.

In treating large bodies of water with petroleum, the ordinary garden sprinkling pot is a good and practical method of distributing it. Experiments made with permanganate of potassium, bichloride of mercury, sulphate of copper, carbolic acid, etc., have shown that these agents are greatly inferior to petroleum for this purpose. Their action is slow, and the mosquito larvæ live in comparatively strong solutions. For instance, larvæ have re-

mained active from one to three days in a 1:1500 solution of bichloride of mercury. Even comparatively strong solutions of carbolic acid or permanganate of potassium do not destroy them for some time. In some very exhaustive experiments made with sulphate of copper and lime for the destruction of mosquito larvæ, the author found that these agents did not destroy the mosquito by a toxic effect, but slowly by clarifying the water and precipitating the organic matter which it contained, thereby removing the nourishment from the larvæ. Furthermore, it must be remembered that pools of water throughout the country may be used for drinking purposes, particularly by animals, and that the use of such agents as bichloride of mercury, carbolic acid, etc., is therefore unsafe. On the other hand, the petroleum oil is cheap, practically harmless, and destroys the larvæ at once, and so far as we know at the present time is superior to anything else for this purpose, provided proper drainage or filling in cannot be effected.

All varieties of mosquitoes are most active after sundown. This we know not only from the annoyance which they cause us, but from the indisputable testimony presented by medical experiments with the malarial and yellow fever variety. During the day, when the mosquitoes are generally inactive, they select for their abiding place the high grass and underbrush. Therefore, this material should be removed if present about the premises in mosquito-infected districts.

The points to which the author has referred in this paper constitute the bulk of what is at present really known regarding the habits of the mosquito and the means of exterminating them. Many investigations, however, are now in progress in this country, and there is good reason to believe that much valuable information will be added to our knowledge during the next year.

THE TREATMENT OF DYSENTERY.

The *Indian Medical Gazette* for July, 1905, discusses *in extenso* the treatment of dysentery. It first considers the treatment of dysentery by aperients: these are calomel, castor oil, and the saline sulphates of soda or magnesia.

As to calomel, it was first used with

success by French physicians in Algiers, and introduced into India, he believes, by Annesley. Several medical men use this drug regularly and with good effect. It has been used in large doses (5 to 7 grains) every five or six hours, or in smaller doses of one grain more frequently. Fractional doses have been found of use in the dysentery of children. It is very frequently prescribed in combination with other drugs, as ipecacuanha and opium, or, as by Kartulus, in half-grain doses with 5 grains of naphthalin ten or twelve times in the twenty-four hours.

Castor Oil.—This is a very valuable drug in the treatment of dysentery, and in the form of Birch's castor-oil emulsion is much used, and is of especial value in the dysentery of children. The old Indian practice of a preliminary dose of half an ounce of castor oil with 10 minims of laudanum is of great value, and should, he thinks, precede any other form of drug treatment except perhaps the saline.

The Salines.—The saline treatment of dysentery was also introduced by French physicians, and of recent years has become very popular in India. Several years ago their use was advocated by Tull-Walsh and Leahy in India, and more recently by the present editor of the *Indian Medical Gazette*. Wyatt-Smith considered the salines almost as specific in the dysentery of Brazil. The latest article on the saline treatment of dysentery by W. J. Buchanan gives the following results: It is based upon the use of sulphate of soda in drachm doses in 1130 consecutive cases of dysentery among prisoners with only nine deaths, or a death-rate of considerably under one per cent.

For acute cases of dysentery the author knows of no drug which acts so rapidly, so painlessly, or so effectually. It is recommended to give this drug in drachm doses in either fennel or cinnamon water, four, five, or six times a day till bright-yellow, soft, feculent stools are produced without a trace of blood or mucus. It is not recommended in chronic cases, where ulceration is known or suspected to be present, but it may be given in a careful manner during acute exacerbations of the chronic state. The use of sulphate of soda combined with rest in bed and low diet is the most useful routine treatment for

commencing cases of acute dysentery. It is not recommended for out-patient practice, because it is not easy to know the state of the inflammation in the patient's bowel, and it is not possible to properly watch the stools, but where patients can be promptly admitted to hospital on the first occurrence of symptoms we know of no drug so useful in acute dysentery.

Treatment by Intestinal Antiseptics.—The drugs used in this method of treating dysentery are many, but attention has been chiefly directed to the use of salol, bismuth, perchloride of mercury, sulphur, betanaphthol, izal, and other modern "intestinal antiseptics." Salol has been recommended by Kartulus and Rasch in 15- to 20-grain doses, either alone or in emulsion with castor oil and gum acacia. Bismuth is much used as a routine treatment, and is supposed to be of value in chronic dysentery. It is probably useless in the acute form. The salts of bismuth are insoluble in the intestinal canal, and any effect they could have would be merely mechanical. At autopsies the author has seen the edges of ulcers impregnated with bismuth, but only with the effect of hardening them, and possibly preventing their healing.

Perchloride of mercury in combination with cannabis indica enjoyed at one time a great repute in India, and is still prescribed, though beyond the possibility of its being what is vaguely called "an intestinal antiseptic" it is not clear how it can be of use. Newer drugs, such as betanaphthol, naphthalin, acetozone, alphozone, have also had their advocates, and they may be of use in getting rid of the ameba in cases of that form of dysentery.

The use of izal, however, stands upon a somewhat different footing, in India at least, where owing to the powerful advocacy of Major J. C. S. Vaughan, I.M.S., it is being tried by many medical men. Vaughan showed that, according to the researches of Tuncliffe, the doses required to produce toxic symptoms are far in excess of those required to produce the ordinary therapeutic effects of izal. He found, as many others have done, that izal in three-minim doses, as first recommended, is quite useless, and he pushed the izal, and now recommends it in 15- or 25-minim doses—that is, doses of from 15 to 25 minims six or seven times a day.

The drug can be made up with chloric ether, cardamoms and glycerin, or with spirits of chloroform, and peppermint, etc., or it may be given in milk.

The Treatment by Enemata.—There can be no doubt that there is much to be said in favor of the treatment of dysentery by enemata; unfortunately, however, this is not a popular method of treatment with natives of India.

All sorts of astringents and antiseptics have been used. Nitrate of silver has much in its favor, iodoform and olive oil have advocates. All these remedies may be of use in chronic dysentery, but are not of much use in acute dysentery, except in the amebic form, as powerfully advocated by Musgrave of Manila.

The drug treatment of dysentery may be summed up by saying that there are many equally good methods of treatment for acute cases, but there is no royal road to the treatment of chronic dysentery, in which infinite patience on the part of both physician and patient is required.

Nothing has been said about the local treatment of this disease, such as fomentations, leeches to anus, etc., etc. Such remedies are, however, applied on general principles.

On recovery from an acute or chronic attack of dysentery the greatest care is necessary. The diet should only gradually return to the ordinary, and it should always be remembered that relapses are frequent, and for years after a patient needs to take the greatest care of himself. Change of scene is of the greatest advantage where it can be taken, and European patients are recommended to go on leave after recovery, and to try Helouan, Carlsbad, or other similar health resorts.

THE TREATMENT OF GOUTY AND RHEUMATIC NEURITIS.

In the course of an article in the *Clinical Journal* of August 2, 1905, SIKES tells us that in acute cases the first point is complete rest in bed, preferably in a sunny room, with plenty of fresh air. Here the affected part is given the best chance, and any reflex efforts due to moving other parts of the body are avoided. How often one finds a brachial neuritis not improving when a patient is going about in the early stages with his arm in a sling, although not moving the affected

part to any extent; still the usual household and business worries, and the exercising of other muscles, seem to act prejudicially on the affected nerves. Again, with a patient in bed it is much easier for the first few days to apply local remedies.

Our next point is to try to benefit the general gouty or rheumatic state of the system by aperients, diuretics, etc. Laxatives are very useful. Recent work seems to indicate that in gout it is probable that the gastrointestinal tract may have more to do with this disease than was at one time supposed. But in many cases sodium or potassium bicarbonate, say 20 to 40 grains every four hours, will give as good a result as anything else. The depressing effect of the alkali may be at least partially obviated by the use of tonics. Ord has recommended potassium bromide and sodium salicylate, 15 to 20 grains of each. Also potassium iodide plus salicylate of sodium are at times useful. It is worth while in many cases trying the effect of small doses of calomel.

The patient should be kept on a good stimulating liquid diet at first—milk, beef extracts, broths, soup, etc. Later, when solid food is allowed, the main point is the avoidance of carbohydrates; no potatoes, starchy or sugary foods should be permitted. It is, in the author's opinion, a mistake to exclude meat in these cases of gouty or rheumatic neuritis when once the very acute stage is over.

Local Treatment.—In the majority of cases the author has great faith in an alkaline lotion of soda and opium. It should be applied as hot as the patient can bear it. A large piece of lint or flannel should be wrung out of the hot lotion and applied to the affected part and then covered with oiled silk. Salt and water, or bicarbonate of soda and water, are also useful.

In some cases, as in sciatica, where a definite nerve trunk is involved, chloroform and belladonna, blisters, or leeches may be efficacious.

Where hot applications do not suit, cold in the form of ice-bags, or even methyl or ethyl chloride, may be useful. The alternate use of hot and cold applications to the affected part is also well worth trying. If there be anesthesia of

the skin, care must be taken not to burn the patient, as in these conditions blistering, or actual ulceration, may result.

Hot bathing may be very valuable, but the local electric light and heat bath gives the best results, if given so that there is actual perspiration of the part.

If there be severe pain or sleeplessness, sedatives must be given—bromides, phenacetine, exalgin, antipyrin, etc.—or if without effect, cannabis indica, cocaine hypodermically; or lastly morphine, if other drugs fail.

The time of rest must depend on the case, and one must always bear in mind the possibility of stiffening of the joints.

In the acute stages any electrical treatment beyond that of light and heat requires careful consideration, and unless the medical attendant be experienced in its uses and indications it is better to entirely avoid it. Remak mentions that amelioration may be obtained by using the constant current. The anode, of a superficial area of 20 to 30 sq. mm., is well moistened and applied over the affected part, a current of 2 to 6 milliamperes being used. After a while the pain is often better and deep pressure much less painful. A strong current will certainly aggravate the pain. Whether the condition of the nerve be actually one of anelectrotonus or not matters little; it is certain that a weak current applied as above over the brachial plexus, or sciatic nerve, will often cause a "sleepy" condition of the fingers or toes and lessen the pain.

In the subacute stages, when the patient is up and able to get about to some extent, there is little doubt that physical methods of treatment are indicated—of course combined with good food, fresh air, and tonics, as hypophosphites, strychnine, and arsenic.

THE MEDICAL TREATMENT OF GASTRIC ULCER AND HYPERCHLORHYDRIA.

SHATTUCK has contributed to the *Boston Medical and Surgical Journal* of September 21, 1905, an article on this subject which is of unusual interest. In speaking of the hyperchlorhydria associated with gastric ulcer he asserts that there are few conditions more gratifying than it is to treat. An alkali, only palliative in the more severe and persis-

tent cases, is practically curative in those which are more transitory, relieving the distress.

Soda mint tablets, the author believes, would be better without the mint, and must be taken by the dozen, save in the mildest degrees. It is therefore better to take plain bicarbonate of soda dissolved in plenty of water.

Magnesia, either in powder form or the so-called milk of magnesia, is excellent if there be constipation. But in the higher degrees of hyperchlorhydria the large quantity of magnesia required as an antacid is apt to act too freely on the bowels.

The diet should largely exclude salt, the source of HCl. Condiments should be absolutely excluded. Milk, pure or in combination, or prepared in various ways, is practically always admissible or even desirable, and the author often allows soft-boiled, dropped, or scrambled eggs unless experience forbids. Meat and even fish are to be temporarily excluded, say for a few weeks, and then permitted only sparingly and tentatively.

Diet and such mode of life as tends to restore a more or less tired nervous system, which is apt to be a causative factor, will generally work a cure without the aid of medicine. In severe cases from one-half to two teaspoonfuls of subnitrate of bismuth before meals seems of distinct benefit, probably acting as a protective coating to the gastric mucous membrane against the food, and thus diminishing the activity and secretion of the peptic glands. In these large doses the drug is not constipating. The microscope shows that the drug has a crystalline formation, which may account for its failure to constipate.

In cases where there is doubt as to whether hyperchlorhydria is complicated by ulcer, the above treatment is applicable, save perhaps that the diet may be made rather more rigid; and this is true also of cases in which ulcer is probable, but in which bleeding has never occurred, or at all events has not been recent.

In cases presenting marked and characteristic ulcer pain, or coming under treatment just after hemorrhage, it is desirable to give the stomach rest for several days. Morphine is to be given hypodermically in such doses as may be required to allay pain. It may also be

given in smaller and repeated doses by the mouth either for restlessness or to blunt an appetite which it is not then safe to indulge. The drug also quiets peristalsis and diminishes glandular secretion.

After three or four days of exclusive rectal feeding, milk and lime water, a drachm every fifteen minutes, can be given by the stomach with daily increase in the amount, lengthening of the interval, or both. In ten to fourteen days milk toast, junket, rice with cream and sugar, baked potato, macaroni, blanc mange, and the like may be added, and rectal feeding omitted. The author believes that in these cases abstinence from meat should be prolonged for at least three months. Food containing starchy things, such as unstrained oatmeal, seed fruits, and the like, are also to be excluded lest they irritate the raw surface. The principle is simply to select such food as demands the least stomach digestion and to avoid irritation as far as may be. Bismuth is desirable until full and ordinary diet has been resumed, say for three to six months. It here serves a double purpose, diminishing secretion and also mechanically protecting the raw surface from both food and such gastric juice as is formed.

THE TREATMENT OF ANGINA PECTORIS AND PSEUDOANGINA.

BROADBENT in the *Lancet* of May 27, 1905, speaks as follows of the therapy of this state:

The treatment of angina resolves itself into the treatment of high arterial tension. The resistance in the peripheral circulation which gives rise to this the writer places primarily in the capillaries, and it is attributable to the presence in the blood of impurities which provoke this resistance. The object before us, then, is to prevent the formation and to promote the elimination of these toxins. We simplify the diet, reducing the amount of animal food, and especially the richer meats, bearing in mind also the fact, pointed out by Dr. G. Oliver, that boiled meat raises the arterial tension much less than roast meat. Meat extracts of all kinds will be forbidden. It may be worth while in some cases to

order a strict milk diet and to enforce absolute rest. The patient must, of course, be placed under the best obtainable hygienic conditions as regards air and climate, and should take daily such exercise as he is capable of without bringing on pain. Exercise may be supplemented by judicious massage and resisted movements. By way of promoting elimination a tumbler of water should be drunk night and morning, hot or cold—perhaps also an hour before meals. The alkaline salts also are eliminants, particularly the potassium and lithium salts, and may be given to aid the action of the water. Certain mineral waters are useful in this respect. A more definite effect on arterial tension is obtained by mercurial aperients and iodides, presumably through their eliminant action, possibly also through their influence on metabolism. Most striking reduction of arterial tension follows the administration of a single grain of calomel, pilula hydrargyri, or hydrargyrum cum creta nightly or every second or third night, with just sufficient of one or other of the vegetable or saline aperients to secure an efficient action of the bowels. Colchicum or ipecacuanha seems to enhance the vasodilating effect. The iodides may have some resolvent effect on the chronic aortitis, which impairs the elasticity of the aorta and blocks the mouths of the coronary arteries.

The mild mercurial aperients and the iodides, then, form the basis of the medicinal treatment of the cardiovascular condition which gives rise to angina. With them will be associated tonics or other remedies which may be indicated by functional derangement of any kind. Quite the most important of these is dyspepsia with flatulent distention of the stomach. The direct vascular relaxants, amyl nitrite and nitroglycerin, are invaluable for the relief of the paroxysms, but their influence on the blood-pressure is far too brief to have any beneficial effect on the arterial tension. The nitrites and erythrol-tetranitrate have a more persistent vasodilator effect, and seem in some cases to aid materially in diminishing the frequency and severity of the paroxysms. A medical friend to whom the writer recommended the erythrol attributed to it immunity from attacks which he enjoyed for many years.

A NOTE ON THE TREATMENT BY ELECTRICITY OF THE SECONDARY CONTRACTURES OCCURRING IN HEMIPLEGIA.

A note on this subject is made by PORTS to the *University of Pennsylvania Medical Bulletin* for October, 1905. He thinks that much of the disrepute into which electricity as a therapeutic agent has fallen is due to the fact that it has been employed without careful consideration of the end to be accomplished, and of the best form of current and method of application which will attain that end. Examination will often show that in cases of hemiplegia, when contractures have developed, the patient's disability is not due so much to muscular weakness as to the deformity produced by them. Also, whatever the reason that in some cases they occur and in others they do not, when they do occur the deformity is caused by the overaction of one group of muscles, usually the flexors, and the relaxation of their opposing group. It is therefore apparent that in such a case stimulation of the overacting muscles will only aggravate the trouble. The writer has for a long time taught and practiced the following method of treatment, with considerable relief in a number of cases: To relax the contracted muscles he utilizes the positive pole of the galvanic current, thus producing the state of anelectrotonus. This pole is placed successively over the motor points of the affected muscles, and the negative pole, or cathode, is placed at an indifferent point, preferably the nape of the neck or over the sternum. The current is then gradually increased to a strength of from 5 to 10 milliamperes, or as strong as the patient can comfortably bear, and allowed to flow without interruption for at least five minutes; it is then gradually decreased in strength to zero.

If the current is not gradually decreased, a condition of increased irritability, or catelectrotonus, will follow, which will defeat the desired end. It is also important that before the positive electrode is moved from one point to another the current be shut off in the method above described, to be again gradually increased after the electrode is moved to the desired point. After this the weakened faradic current should be used just strong enough to cause them

to contract, about a dozen contractions being sufficient, remembering that too many contractions cause overstimulation, and hence weakening. This method may also be employed to prevent contractures, remembering that its use should not be begun until at least two weeks after the onset of the apoplectic seizure. Three treatments a week for several months should be given, to be followed by a rest of several weeks, to be again followed by the electric treatment if necessary.

The writer has not seen this plan described in any of the treatises on electrotherapeutics, excepting that of Jacoby, who has evidently also employed this method.

SOME POINTS REGARDING THE MOTHER'S MILK IN THE EARLY WEEKS OF INFANT LIFE.

HANDFIELD-JONES, in the *London Practitioner* for October, 1905, states that in studying the causes of non-lactation we may divide the mothers into various groups. Thus there are women in whom the breasts are perfectly formed, and in whom the secretion of milk is abundant and normal in every respect, and yet who refuse to suckle their infants. In some of these instances good reasons may exist. For instance, in the lying-in hospitals and maternity charities one comes across poor women who have to earn their living at factories and houses of business, and who return to work within a fortnight after delivery, and in whom nursing is of necessity an impossibility. Again, among the leisure classes there are women who suffer from tubercular disease, or neurasthenia, or, it may be, heart disease, and who, though willing and able to suckle their children, yet owing to physical infirmities are unequal to the strain.

These cases, however, form only a small fraction of this group, and in the majority of instances these mothers refuse to nurse, solely because the function would seriously interfere with their social engagements or pleasures. Without doubt the weakness of these patients is fostered considerably by the action of many monthly nurses. It is a temptation to stand well with the mother by pandering to her selfish wishes, and again there is a point of personal comfort to be gained.

As long as the woman suckles her infant the monthly nurse must rise two or three times in the night to bring the child to the mother, and must remain awake till the feeding is accomplished; but wean the baby, and things are altered for the better as regards the nurse. Now she can have the child near her in bed, and can have the bottle of food kept warm close at hand. There is no need to leave her bed, no need to stay up till feeding is over, no trouble in persuading the refractory infant to take hold of a rather flat nipple. Can one wonder at the appeal to unregenerate human nature? Personal unexperience has taught him that if the nurse is against breast-feeding it is hopeless to persevere in the unequal contest.

There is a second group of women who have serious difficulty in ministering to the wants of the child, owing to some anatomical defect. Thus, the breast may contain an insufficient amount of secreting tissue, or the nipple may be flat or depressed. In many of these cases the difficulty can be overcome by a little patience and self-denial, especially if both mother and nurse are determined to succeed. The deficient amount of mother's milk may be supplemented by one or two bottles daily of humanized milk, and the trouble with the nipple may be overcome by the use of the india-rubber shield. In a large number of instances, however, after two or three days of struggle, all further attempts are abandoned in favor of the bottle with its comfortable india-rubber nozzle. It is certainly a matter for study by the evolutionists why so many women of the present generation, who are tall, athletic, and of marked muscular build, have such a poor development of their mammary glands. Does it represent nature's protest against the aping of the male organism by the young women of to-day?

A third group is formed by those women who have well-formed breasts, and who often at first produce an excess of healthy milk. During the three or four weeks after delivery all goes well, and they have abundant supplies for their infant; but as soon as they leave their beds, and begin to resume the ordinary duties of life, the supply of milk rapidly fails, and soon disappears altogether. From time to time one meets with young women who are able to attend to the

wants of their offspring while they are living quiet lives in the country, but who promptly lose the power of secreting milk as soon as they come into big towns and begin to lead a life of stress and bustle. Some of these patients can go on suckling for several months if they nurse the infant during the daytime only, and have their night's rest undisturbed. At night the child is fed by the bottle. In the minds of the older nurses an idea existed that mother's milk and modified cow's milk could never be tolerated by the same infant; but all experience goes to prove that an infant will thrive perfectly while being suckled by its mother during the day and fed by some artificial food during the night. The women who form this group are generally mothers who are handicapped by an unstable nervous system; their energies are rapidly dissipated, they are easily choked by the cares and anxieties of this life, and so, being easily exhausted, bring no milk to perfection.

The fourth group will include those patients in whom, for some reason, the chemical composition of the mother's milk does not agree with the digestive organs of the child. Here various conditions may be present. In some instances the milk of the mother is of low nutritive quality and deficient in fats. The child does not seem ill, but is constantly crying and seems unsatisfied, there is little if any gain in body weight, constipation is often present, and the stools are unduly hard and firm. Relief is soon obtained if some additional fat is added to the dietary; 20 or 30 drops of cream may be diluted with some of the mother's milk, drawn off by the breast pump, and administered at the end of each meal. Occasionally a bottle of cow's milk, diluted with barley water (1 in 3), and given night and morning instead of the breast, serves the same purpose. In a few cases the want of a sufficient supply of milk-sugar is a cause of the malnutrition, and a dose of lactose (20 to 30 grains), administered three or four times in the twenty-four hours, has had a most beneficial result. Quite recently a case came under observation in which it seemed absolutely essential that the child should be weaned, owing to the griping and purging which attended the breast-feeding, and yet in this case the mother's milk agreed perfectly when a bottle of one of the chemi-

cal foods was administered morning and evening. On several occasions an attempt was made during the first three months to dispense with this addition, but on each occasion the evidence of imperfect digestion rapidly returned.

The use of alkalis in assisting the digestion of the mother's milk is well known to practitioners. Children will be griped, and pass undigested curd, when fed by the mother, and yet such a simple prescription as the following given to the child shortly after it has taken the breast will relieve all the distressing symptoms:

℞ Sodii carb., gr. j;
Sodii citrat., gr. iij;
Spt. ammon. aromat., m. ij;
Syrup. simplicis, m. xx;
Aquæ anethi, q. s. ad fʒj.

It is important, before insisting on the cessation of breast-feeding, that we should assure ourselves that there is no secondary cause which is disturbing the chemical composition of the mother's milk. Sometimes the mother is in the habit of taking Hunyadi-Janos, Apenta, or some saline purge every morning, and the medical attendant is not told of this custom, and so the digestive disorders of the infant are perpetuated, until the morning dose is noted and discontinued.

In one instance the mother was taking tablets of Easton's syrup unknown to her doctor, and the strychnine in the syrup was the cause of the child's intestinal disorder.

SCOPOLAMINE-MORPHINE ANESTHESIA.

To the *University of Pennsylvania Medical Bulletin* for October, 1905, NORRIS makes a report on this subject. His attention was first directed to scopolamine-morphine anesthesia by Terrier's excellent article in *International Clinics*, vol. ii, 1905, and on looking up the literature of the subject and finding that the reporters were almost unanimously unstinting in their praise of its virtues, Norris determined to give it a trial. Scopolamine was extracted by Schmidt from the *Scopolia Japonica* plant in 1890. Its uses have been as a sedative for the insane and as a mydriatic by ophthalmologists in solution of 1/10 to 1/5 per cent. In 1900 Schneiderlin combined it with morphine and used it to produce general surgical anesthesia, but it does not ap-

pear to have met with favor until 1903, when numerous German surgeons began to use it and published their results. Terrier collected in all 1488 cases of its use, not including his own 26 cases, to which number can be added 72 cases of Ries's, 11 cases of Wood's, 10 cases of the writer's, and 65 cases of Seelig's, the latter cases, however, being only a single injection of scopolamine hydrobromate, gr. 1/100, and morphine sulphate, gr. 1/6, given one-half hour before general anesthesia was induced by ethyl chloride. Scopolamine hydrobromate (Merck), from the *Scopolia atropoides*, occurs as colorless hygroscopic crystals, soluble in about four parts of water, fifteen parts of alcohol, and only slightly soluble in chloroform or ether. The maximum dose is given as 1/20 of a grain per diem. It soon deteriorates, and only a fresh solution should be used. Physiologically its action is said to be very similar to hyoscine, and the observations of Ries are confirmatory of these views, as he obtained precisely the same results by means of hyoscine and morphine as he did later with scopolamine.

Norris followed the technique of Terrier, giving scopolamine hydrobromate 1/64 grain, morphine sulphate 1/6 grain, and distilled water 15 minims, hypodermically, four hours, two hours, and one hour before operating, and even in his small number of cases he was struck by the different way in which the patients were affected by giving the same amount, with one exception, and not allowing for the differences in temperament. It would seem that women require less than men, as is true of any anesthetic, and that highly excitable, nervous patients and alcoholics need larger doses. In this we must be guided by the pupils, pulse, and respirations, giving more scopolamine if the pupils are contracted, more morphine if they are dilated, up to the maximum dose. After the first injection the patient becomes slightly excited, and may toss around in bed or try to get up, but soon succumbs to the increasing drowsiness, and in a quarter to half an hour is sound asleep. The pulse-rate falls at first and then rises; the respirations are quiet. At the second injection the patient may rouse up and make some movements of the arms or legs, but is unconscious of the needle, and sleep becomes deeper. At

the third injection anesthesia should be complete, the skin dry and warm, face flushed, pulse regular and strong, but rapid (100 to 120), respirations slow and quiet (12 to 16), pupils slightly dilated or midway between contraction and dilatation, conjunctival reflex present. (In two of the author's cases there was a divergent strabismus.) It is important to remember that the patient can easily be aroused by shaking or loud talking, so that it is well to place pledgets of cotton in the ears, cover the eyes, and preserve silence in the operating-room. When making the skin incision or during the operative procedures the patient may move slightly, necessitating some restraint, though the analgesia is complete, so that the operator, having his first experiences with this form of anesthesia, may order chloroform or ether to be given when it is not necessary. After the completion of the operation the patient is carried back to bed, where he sleeps peacefully for several hours, awakening as from a natural sleep, with no nausea, thirst, or acute postoperative pain. The urine is normal. When, either through some instability of the preparation of scopolamine and morphine used, or some idiosyncrasy of the patient, sufficiently deep anesthesia is not produced by it for the performance of the operation, a very small amount of either ether or chloroform will be required.

The disadvantages of the use of scopolamine are that complete muscular relaxation is not secured, and that therefore it is not the anesthetic of choice for laparotomies or delicate operations, where the patient in the event of making a movement might seriously hinder the surgeon. Also in its present status, like all new things, it must be used with discrimination and in proper amounts, for while no deaths have been reported as directly attributable to its use, should some fatalities occur, immediately there would be a wave of adverse criticism.

Its advantages are numerous. The patient is saved the fear of nitrous oxide gas, ether, or chloroform, the preliminary struggling of anesthetization, the postoperative pain. There is no risk of ether being dropped in the eyes, the mouth-gag applied, or the tongue forceps used. Retention of urine does not occur, and peristalsis is not interfered with. An an-

esthetist is done away with. Lastly comes the question of expense, sufficient scopolamine and morphine for an ordinary surgical operation costing, roughly, about two cents against ether at twenty-five cents per 100 grammes (hospital rates). In patients with pulmonary tuberculosis it would seem to be far preferable to ether, and in military surgery the writer thinks this form of anesthesia should have a very general use during actual warfare on account of its cheapness, ease of administration, and small bulk.

THE ACTIVE TREATMENT OF MUSCULAR RHEUMATISM.

CATES asserts in the *Boston Medical and Surgical Journal* of November 2, 1905, that the successful treatment of muscular rheumatism hinges on two things, to wit: the proper mastication of one's food, and the proper exercise of one's muscles, using only those methods that call into play movements most nearly akin to the natural play of the muscles, and to that end the following advice is given:

First, as to one's eating. It is a fallacy to say that one cannot digest a certain kind of food; one's stomach can digest anything one can masticate. At times the physician must be didactic in giving instructions along this line. It is a difficult thing for one who has always been used to bolting one's food to eat properly; it takes several months of close attention to eating to learn to masticate one's food properly, and without one's attention being constantly on the food being masticated.

The first thing to do along this line is to examine the patient's teeth for defects. If any defects are found, have them repaired at once. If, as is often the case, the patient has no teeth, have him get a set. It is not worth while to waste time giving digestants when the teeth are out of order. Teach the patient that the stomach and intestines have no teeth and are only for digesting food. Teach the patient to chew the food slowly and freely until the tongue can feel no lumps in the bolus. In other words, chew the food until it is like wax.

In regard to rules for exercising the muscles with Indian clubs, it may be set down that there are no rules, save for the

physician to discover the offending muscle or muscles, and then to teach the patient how to use the clubs so as to exercise the muscles at fault.

To illustrate: Suppose one has lumbago and sciatica, and also rheumatism affecting the muscles around the top of the shoulders. The patient having stripped, with a bath towel wrapped around the loins, stands holding the clubs, with the feet widely apart, and throws the entire weight of the body on the right lower limb, the face following the direction of the clubs, at the same time extending the clubs far to the right and above the head; now the patient may, if he so desires, without changing his position in making this movement, let the clubs fall backward over his shoulders, and in so doing act powerfully on the deltoids and scapular muscles, and still holding the clubs in this position by dropping the shoulders with the clubs pointing downward and backward act also on the pectoral muscles, the weight of the clubs drawing the shoulders backward; then bring the clubs down in front in a broad sweep toward the floor, shift the assumed right position to the left side. The patient then in slow and measured time keeps up these side movements for two or three minutes. Now, in the same position, feet apart, he turns his face to the right, and with arms extended above the head he makes a profound salaam, bringing the clubs to the floor; then rising to the erect position he throws his body and head as far back as possible, at the same time bringing the clubs back over his shoulder in a broad sweep to the rear. These forward and backward movements of the arms exercise the deltoids and scapular muscles attached to the humerus; repeat these movements for two or three minutes. Now face to the front and repeat the right lateral movements for two or three minutes; then face to the left and repeat the right and front movements. In this way all the muscles at fault, as well as those not offending, are exercised equally. This done, lay aside one club and swing with right hand from right to left in broad sweeps, in front reaching as far as the arm will go, by swaying from one lower limb to the other; with each swing incline the body slightly forward, and let the body and face follow the movements of the arm.

Repeat this movement for two minutes. Take the club in the left hand, and repeat with left hand for two minutes the same movement as was done with right hand.

Without changing the position, the face looking straight ahead, with right hand bring the club in a broad sweep down in front, at the same time bending the body far toward the floor; then assume the exaggerated erect position with head thrown back, and as this is done bring the arm in a broad sweep over the shoulder toward the rear; repeat these movements for two minutes. Then shift the club to the left hand and repeat these same movements for two minutes. In other words, one exaggerates the movements the blacksmith assumes when with a heavy hammer he strikes the iron at white heat.

ETHYL CHLORIDE AS A GENERAL ANESTHETIC.

We have so often given information about this drug that the following abstract from an article by McCARDIE in the London *Lancet* of October 7, 1905, as to its contraindications is of interest. He believes the contraindications to ethyl chloride are connected with the upper air-passages, and particularly with inflammation or narrowing in or about the larynx—e.g., swelling or edema thereabouts. Patients suffering from goitre take it well unless there be marked dyspnea or stridor. Mr. Carter Braine has reported an instance in which ethyl chloride was given with excellent result after great danger had arisen under nitrous oxide in a goitrous patient. On one occasion the writer administered ethyl chloride for six or seven minutes to an old man who was being tracheotomized for a malignant growth in the larynx. The operation was a difficult one, and the increased vascularity and quick breathing so embarrassed the operator that the writer changed to chloroform, with the result of marked improvement to the patient's condition. Girard has suggested kidney disease as a contraindication, but there seem to be no facts to support him.

From a medicolegal point of view ethyl chloride (and ethyl bromide) is the only drug with which it would be reasonably possible to bring about remarkably quick

loss of consciousness, alleged to have been caused by the close and forcible application of a handkerchief or cloth over the mouth, and so far as is known it has not yet been suggested that these drugs have been used thus. In any case the handkerchief would need to be large and fairly thickly folded, to be saturated with the drug, and so firmly applied as to exclude all air.

In military surgery ethyl chloride will be very useful owing to its portability and rapidity of action. In certain procedures, such as tying blood-vessels and small amputations, it is necessary to operate on the spot before the patient can be safely transported to a base hospital. The saving of five or six minutes in the induction and, say, of ten minutes in the recovery from narcosis is in such conditions most important, especially as the number of surgeons is always out of proportion to the number needed in a serious engagement. Time, too, could be saved by administering ethyl chloride before chloroform. Again, in soldiers enfeebled by campaigning and suffering from great loss of blood, shock would be far less intensified by ethyl chloride than by chloroform. Again, after ethyl chloride narcosis patients are at once safely transported. In the Austrian and Roumanian armies ethyl chloride has been used since 1900.

The pendulum of fashion has now swung too far in favor of ethyl chloride, and as it is our duty to produce anesthesia with the least physiological disturbance to the patient we must see to it, in view of the number of deaths and the oftentimes severity of the after-effects, that ethyl chloride shall not be administered without good reason, and should use our influence to prevent its use by those unqualified in the practice of medicine and surgery. It is still the duty of the anesthetist to choose his anesthetic thinking first of the safety of the patient.

In conclusion, the author believes that ethyl chloride occupies a position as an anesthetic about midway between nitrous oxide and ether. It is, as one would expect from its composition, more toxic than the former, and when used in properly selected cases nearly as safe as the latter. Nitrous oxide as regards safety is still in a class by itself, and should be

administered wherever possible. We should use ethyl chloride rather to replace chloroform and ether in certain cases than to administer it as a substitute for nitrous oxide. For short operations needing longer and deeper anesthesia and greater muscular relaxation than nitrous oxide or nitrous oxide mixed with oxygen affords, ethyl chloride is of great advantage. As a preliminary to etherization it is unequaled. In cases in which there is much thickening of the tissues of the neck or any suspicion of laryngitis or edema of the larynx, it is contraindicated.

THE TREATMENT OF SLEEPLESSNESS AND PAIN.

The *British Medical Journal* of October 21, 1905, contains a useful symposium on this subject by several British physicians. Among others HALE WHITE contributes the following views. He believes the first thing to make out is whether sleeplessness is real; some persons imagine they have not slept when really they have; some certainly dream that they have had a sleepless night. A good way to settle the point is to ask the sufferer how many times he heard the clock strike.

The simplest form of sleeplessness is that which arises from the fact that the patient is worrying. Sometimes the worry is a real trouble, such as the loss of a dear friend; sometimes it is hardly worthy of the name of a trouble—for example, he wonders whether he offended some one, or whether he voted the right way at some unimportant meeting; and he lies tossing in bed, constantly turning the trivial question over in his mind, and greatly exaggerating its importance. This may go on till five in the morning, when at last sleep comes. People liable to this form of sleeplessness should not be called, for they may perhaps sleep on; but, unfortunately, they generally wake at their usual hour. Some successfully court sleep by counting; one patient used to count up his golf score, and usually fell asleep in so doing; others alter the train of their thoughts by reading for half an hour.

The next commonest cause for sleeplessness is indigestion; it may be very slight, and hence is often overlooked. For

example, the patient wakes up about 3 A.M., sometimes with a feeling of discomfort in the stomach; this is probably only a variety of hunger—the secretion of gastric juice has not been dormant through the night, as it should be. If the patient takes a little milk or a biscuit, or a little whiskey or gin and a biscuit, after a while he drops asleep; one patient could get to sleep again by taking some bismuth and bicarbonate of soda. This form of sleeplessness may be very distressing; the patient may lie awake from about 2 A.M. till 6 A.M. and then drop to sleep, and when called is thoroughly tired and quite unrefreshed. Many cases of sleeplessness may be cured by taking a little food on waking in the night, even if the connection with indigestion is not obvious, but no case is ever thoroughly investigated unless every care has been taken to discover indigestion. Speaking generally, forms of indigestion associated with constipation do not lead to wakefulness; those associated with looseness of the bowels often do, and flatulent dyspepsia is particularly prone to be associated with insomnia. The treatment of these cases is obvious.

It might be thought that those who have to get out of bed frequently to pass water would sleep badly, but this is not so; many a sufferer from frequent micturition hardly really wakes when he gets out of bed, and is sound asleep directly he gets back.

Another cause of sleeplessness is excessive exhaustion. It is literally true, as some patients say, that they cannot sleep because they are too tired. A man after a hard day's work goes for a long walk, in the vain hope of thereby insuring sleep; or, again, he works in the evening till thoroughly exhausted. Sometimes the long walk is before dinner; a man tired out walks four miles home from the office to try and make himself so tired as to compel sleep. The result is he arrives home so fagged that he cannot digest his dinner, suffers from indigestion, and therefore cannot sleep. The treatment of these cases is likewise patent.

The writer recalls a case in which priapism was the cause of insomnia; it was quite unassociated with any desire, and the poor sufferer used to get up and walk about the room in great agony, and

with two patients he has known a lesser degree of the same trouble lead to sleepless nights. In none of these cases was there any emission. Successful treatment is very difficult.

Sometimes insomnia is due to a fever. The author has known prolonged sleeplessness follow convalescence from phthisis and from typhoid fever, but no special treatment is necessary. As the patient's strength increases the power to sleep returns.

Sleeplessness commonly accompanies many diseases. It is a mere truism to say that as far as possible the sleeplessness must be cured by dealing with the cause, but usually the disease which is the cause is incurable, or it will get well when its course is run. In such cases drugs will often be required, and opium is not given as frequently as it might be.

Many a patient with heart disease is much benefited by an injection of morphine; he sleeps, and during sleep the heart is rested. Morphine is often withheld quite unnecessarily in pneumonia from a fear that as the drug depresses the respiratory center it must be bad for the patient. But usually a small quantity (10 grains of Dover's powder) is ample; these patients are generally not livid, so no dangerous depression of the respiratory center will result from so small a dose. This is perhaps the best place to state what ought to be our attitude with regard to giving morphine generally.

If the patient is incurable, and will die in the course of a few weeks, or even months, it is very cruel to withhold from him the great ease that will follow morphine should he be sleepless or in pain; on the other hand, it is even more cruel to give it if the disease is long-lasting or incurable, because of the great risk thereby run that the patient may attain the degradation of becoming a habitual devotee to morphine. Morphine for such recurrent and long-lasting diseases as rheumatoid arthritis, sciatica, neuralgia, or habitual sleeplessness from, say, indigestion is a pernicious prescription.

There are a few helps which may aid sleeplessness, whatever may be its cause. A warm bath immediately before getting into bed is often a great help.

A proper arrangement of bedclothes may lead to a good night. Cold feet keep some awake; this may be avoided by

wearing night socks. As a rule it is better to start the night with few bedclothes, for it is more easy to get to sleep by pulling up an extra blanket if the sleeper is awakened by feeling cold than it is to regain sleep by throwing off a blanket if awakened by being hot. It is notoriously difficult to sleep on very hot nights.

Fresh air often aids refreshing sleep; the open-air treatment of phthisis has shown that dreamless, restful sleep follows sleeping out-of-doors.

Unfortunately, what with the noises of civilization in towns, and natural noises, such as those made by birds and dogs, in the country, the advantages of fresh air are frequently much diminished. The ideal is the association of fresh air with quiet. Happily, most of us become accustomed to noises that recur every night; for example, the Londoner, although terribly distressed by the noise of the birds when he goes into the country, is often not awakened by milk carts. Of all noises, that made by the sea is the least obnoxious to the light sleeper; on the other hand, recurrent noises are among the worst, for the unfortunate would-be sleeper lies awake expecting them to recur; hence, a clock that strikes the quarters has spoiled many a sleep. Some light sleepers fit their rooms with double windows; others put cotton-wool in their ears.

It is usual to sleep better in one position than another; perhaps the favorite is to lie on the right side, but most persons can quickly learn to sleep in a new position, as is seen in the fact that although few sleep naturally on their back, this is soon acquired after abdominal operations.

Every one knows that darkness conduces to sleep. It is surprising what a small thing may make the difference between a good and a bad night. Some people will not sleep away from home because they cannot sleep in a strange bed.

Many people believe that their chance of a good night is enhanced if they take a little spirit and water before going to bed. This may be so with some, but it is certain that with others it has a contrary effect, for it stimulates their faculties and keeps them awake. Such persons would have to take so much alcohol that the harm would outweigh the good.

On the other hand, a glass of warm milk the last thing at night certainly helps some to sleep, and so may a pipe. Poor sleepers should never take tea or coffee after dinner, and many a good night is spoiled by falling asleep after dinner. Different persons require different amounts of sleep, and it is, as a rule, harmful to curtail the amount natural to each person. Less sleep is required after middle life than before it, but the very old often sleep a large part of the twenty-four hours.

Unless, as already mentioned, a sleeplessness is caused by a disease which will soon in its natural course get well, or is due to a malady which will be fatal in a few weeks, soporific drugs should not, generally speaking, be allowed, for there is a great fear that the patient will be unable to do without them, and finally, even harmfully large doses will fail to bring sleep. An exception may occasionally be made when sleeplessness is due to some trouble which time will heal, or to some anxiety or excitement which will pass away; then an occasional dose of some soporific will be useful.

Soporific drugs should not be given in the form of compressed tablets, for they may be useless, because they are passed through the bowel unchanged, or they may dissolve so slowly that they are not absorbed until the end of a sleepless night, with the result that the patient is drowsy the next day. Often, if a peaceful night has been won by one of these drugs, a second good night will follow without another dose, probably because the whole of the first dose has not been eliminated.

Chloral is probably used more than any other soporific; it has the great advantage of being easily soluble, and rarely produces any disagreeable after-effects if given in moderate doses, and children take it well. Its disadvantages are that chloral-taking is a vice to which many people are addicted; occasionally it upsets the stomach; that, as it depresses the blood-pressure and the cardiac muscle, it is undesirable, if the heart is diseased or the blood-pressure low.

Chloralamide has not any of these disadvantages, and is an excellent hypnotic for cases of heart disease, but it must be given in solution; this is best done by putting the desired dose—usually 25

grains—in an ounce of brandy, stirring till the drug is dissolved, adding water to taste, and drinking about an hour before bedtime; if the drug is given as a powder it is dissolved and absorbed so slowly that often after a sleepless night the patient sleeps heavily all the next day.

Chloretone appears to act exactly like chloralamide in effect.

Sulphonal, trional, and tetronal are all powerful and certain hypnotics, having the great advantage of not depressing the heart nor upsetting the digestion; they usually produce refreshing sleep. They have the disadvantage of being insoluble, and are therefore best given in a cachet and not in a compressed tablet, as is often done; owing to their insolubility they sometimes do not take effect until many hours after they are swallowed. None of them should be given if the kidney is diseased, as all may cause hematuria. Trional is probably the best; some persons have got into the habit of taking sulphonal constantly. Any one of the three should be taken an hour before bedtime, and the cachet washed down with a draught of hot water.

Veronal, as far as the writer's experience goes, is an excellent drug with all the advantages of trional; it is, however, insoluble and should therefore be taken in a cachet.

Paraldehyde is a very good hypnotic; it does not depress the heart and quickly produces refreshing sleep. It has the great advantage of being soluble in 1 in 10 of water, therefore $1\frac{1}{2}$ drachms may be given in 2 ounces of water; the disgusting taste may be best covered by adding both tincture and syrup of orange. The disadvantage of it is that the most disagreeable odor of the drug is exhaled from the lungs for days after a single dose. This prevents its use unless the patient is too ill to be up and about. It is particularly valuable when insomnia is associated with delirium or any mental aberration; it may then succeed when other hypnotics have failed. It may be given per rectum. Its very nasty taste nearly always prevents habitual abuse of it, but the writer once knew a doctor who became a slave to it.

Hyoscine should be rarely given, for it is such a powerful poison that it would never do for patients to be under the im-

pression that it is an ordinary hypnotic; but it may be used for cases of insomnia accompanying severe illness, especially if mental disorder is present. It should not be ordered if the pulse is weak, the blood-pressure low, or respiration very labored.

Bromides have not lately been used so much as other soporific drugs, for it has been found that if doses sufficient to produce sleep are given there is often next day much general depression and malaise.

If want of sleep is due to a troublesome cough one-tenth of a grain of heroin hydrochloride at night will often insure a good night, as it stops the cough.

Want of time prevents the author discussing hypnotic suggestion, but it may certainly in a few cases lead to a restful night.

THYROID MEDICATION AND ITS DANGERS.

Professor POUCHET (*Bulletin général de thérapeutique*, Sept. 15, 1905) declares that all the thyroid preparations should be administered with extreme precaution and under constant surveillance. The heart should be perfectly normal, and the medication should be discontinued immediately upon the appearance of vasodilatation, of nervous excitability, and of gastrointestinal or renal disturbance. This caution is insisted upon, lest the condition of iodism be developed, which he summarizes as follows: In man the toxic effects may be divided into two groups: (1) Acute symptoms of a nervous character, notably instability of the pulse, then tachycardia (170 beats or more to the minute), vertigo, swelling and congestion of the face, headache, psychic troubles, hyperthermia (vasomotor in origin), insomnia, fatigue (mental and muscular), trembling, respiratory distress, pains in the limbs, and pruritus without eruption on the skin. The heart symptoms appear rather early, and may persist for a long time after the suppression of the thyroid medication; they may even become aggravated and end in syncope. The latter condition most frequently is transitory, but it may be a cause of sudden death. (2) Subacute and chronic phenomena of a nutritive character, as shown by wasting (sometimes very rapid), loss of strength, mental depression, polyuria with phosphaturia, azo-

turia, chloruria, levulosuria, and sometimes albuminuria. In this case the abnormal phenomena are those principally affecting innervation, circulation, and nutrition, and it is significant that the great loss of water by the organism constitutes the principal factor in the diminution of weight. Thyroid extract also has an injurious effect upon the normal activity of certain anatomical elements, particularly nerve cells, which are still more affected by the loss of nitrogen and of phosphorus.

It is principally in the application of thyroid medication to the treatment of obesity that accidents, sometimes of grave character, have been observed, and these toxic effects may persist for a long time. Fatal cases are probably rather numerous, but it is impossible to establish statistics, for the reason that these medicaments are readily obtainable by the public. In consequence a great number of persons direct their own treatment, and as a result subsequently find themselves the victims of physiological accidents without knowing their cause. On this account the Academy of Medicine of Paris has formally suggested that the sale of these products should be subject to government regulation, under the head of dangerous drugs, and also that in future thyroid preparations should not be sold to the public except by prescription of a physician, which must be renewed each time the medicine is dispensed.—*New York Medical Journal*, Oct. 21, 1905.

THE DIGESTIBILITY OF EVAPORATED CREAM.

To the *Medical News* of November 4, 1905, MOJONNIER contributes a paper on this subject. He believes that the following conclusions seem fairly well justified:

The protein in evaporated cream digests a little more rapidly when treated with artificial gastric juice than does that of raw, pasteurized, or boiled milk. The protein in evaporated cream precipitates in a fine, flaky condition, whereas that of raw milk is inclined to be more in the form of a lumpy curd.

The protein in evaporated cream is almost entirely soluble in artificial gastric juice. Its total digestibility by this method compares very favorably with that of raw, pasteurized, and boiled milk.

The small difference found was in favor of the evaporated cream.

By means of natural digestion experiments with a child and with a man, the child was found to digest evaporated cream a little more completely than did the man. As a result of three experiments with each subject, it was found that in the case of the child only 3.31 per cent, and in the case of the man only 6.81 per cent, of the entire solid matter of the food remained undigested. Forster found 6.4 per cent of the total solids of the milk of a nursing child to be undigested.

The total digestibility of the protein in evaporated cream, after making correction for the metabolic products in the feces, in the case of the child was found to be 98.48 per cent, or very nearly what was found by means of artificial gastric juice, namely, 98.89 per cent. With the man it was found to be 93.10 per cent. Both of these values are highly satisfactory for evaporated cream.

The butter fat and milk-sugar were both very completely digested and assimilated by the two subjects. The girl digested 98.80 per cent of the fat and 97.78 per cent of the sugar. The man digested 95.84 per cent of the fat and 96.85 per cent of the sugar.

The child digested nearly 18 per cent more of the mineral matter than did the man. This accords with the accepted theory that a child requires more mineral matter in proportion to its body weight than does an adult, because its bones are growing and developing.

The total energy or fuel value of evaporated cream is almost entirely available to the body. The child used 97.25 per cent and the man 94.59 per cent of the total energy contained in the evaporated cream which they used.

The health of both subjects was normal during the experiments. The child gained in weight an average of about one pound a week during the three experiments and relished its diet. The man lost in body weight but gained in protein during all of the experiments to the amount of nearly one-third ounce of protein per day.

Evaporated cream, like other forms of pure milk, is an economical article of diet because its nutrients are practically all available to the needs of the body.

REPORT OF THIRTEEN CASES OF SCOPOLAMINE-MORPHINE-CHLOROFORM NARCOSIS.

In summarizing his experience in thirteen cases of anesthesia produced in this manner ZINKE gives us the following views in the *Lancet-Clinic* of November 4, 1905:

The operation lasted, in two cases, thirty minutes, in three cases forty minutes, in seven cases from one hour and ten minutes to one hour and forty-five minutes, and in one case two hours and twenty minutes.

In all cases chloroform produced profound anesthesia in from three to five minutes.

The amount of chloroform given was four drachms in one case, five drachms in two cases, six drachms in two cases, seven drachms in two cases, nine drachms in one case, ten drachms in four cases, and twelve drachms in one case.

Scopolamine-morphine injection failed to secure absolute sleep in six cases; after the third injection sleep was produced in three cases; and after the second injection sleep was produced in four cases.

In seven instances the patient had no knowledge of the operation and of the time preceding it.

In three cases there was vomiting before and after the operation, in four cases only after the operation, and in six cases no vomiting at all.

Five cases suffered more or less pain after the operation; in seven cases there was no pain at all.

There was no marked abdominal rigidity in ten cases; it was slight in two and well marked in only one.

In twelve cases there was no unusual bleeding. In one only was the writer obliged to reopen the partly closed peritoneum because the sponge removed showed active hemorrhage, and it is his opinion that the raw surfaces and the character of adhesions broken up were to blame for this rather than the scopolamine-morphine.

In the first case alone was there a decided change in the pulse-rate and the number of respirations; the former fell from 130 to 80, the latter from 26 to 18 per minute. Nothing like it was observed in any of the other cases. Both pulse and respiration seemed undisturbed.

The pupil was found contracted in only

three cases; in all the others it reacted when exposed to the light.

The face was flushed in nearly all instances.

Altogether he has been very favorably impressed with the scopolamine-morphine-chloroform narcosis. There was no period of excitement at any time during the administration of the chloroform. Every patient acted well, and the amount of chloroform given was comparatively small.

LIGATURE OF THE PROFUNDA FEMORIS, COMMON FEMORAL, AND COMMON ILIAC ARTERY ON THE SAME SIDE, WITH PERFECT RECOVERY.

CLARK (*British Medical Journal*, Oct. 7, 1905) details the case of a man aged twenty-six who on April 25 received a deep thrust of a penknife blade at the inner side of the left thigh. The wound bled freely, but apparently did well until May 12, when the hemorrhage incident to suppuration supervened. The profunda femoris artery was then tied. Three days later sudden, severe hemorrhage occurred. The writer, happening to be present, ligatured the common femoral artery at its emergence beneath Poupart's ligament. Five days later a more serious hemorrhage took place. The writer, again being present, at once ligatured the common iliac artery by Crampton's method. The wound suppurated, but healed. On August 11 he was discharged from the hospital. Six months later he was in full employment as an outside porter at a railway station, his work consisting of taking traveler's sample boxes in a hand-barrow about the town.

FRACTURES OF THE HEAD OF THE RADIUS.

THOMAS (*University of Pennsylvania Medical Bulletin*, September and October, 1905) presents the results of his experimental study of fractures of the head of the radius, dealing with the various features of the subject, and offers the following conclusions as to treatment:

In an uncomplicated fracture the prognosis after proper treatment is usually good, and full function of the elbow may

be expected ultimately. In severe complicated fractures and those treated improperly serious permanent impairment of movement in the elbow-joint may result.

When only the radial head is fractured, primary excision of the head should not be done. Excision of the head under any circumstances, even excision of the detached fragment, will rarely be required.

Union of the fragments will occur in many cases, even if moderate movements of the elbow be encouraged during the healing process. The possibility of non-union, however, will always be present, and as it will be difficult to determine the exact conditions existing within the joint, it will probably be best in all cases to permit no movement for the first three or four weeks. Movements during this period probably do little good and may do much harm.

In any case the limb will be practically useless when the splints are removed, but in some cases the limitation of motion will be more stubborn than in others. In ordinary cases this will disappear largely in a few weeks, especially in the hands of a good masseur. After three or four weeks of the masseur's treatment ordinary use of the limb will render it gradually more and more useful, and finally in most cases lead to a full return of function.

INNOMINATE ANEURISM—SIMULTANEOUS LIGATURE OF THE RIGHT CAROTID AND THE RIGHT SUBCLAVIAN ARTERY; RECOVERY.

The case reported by DUNN (*British Medical Journal*, Oct. 7, 1905) is that of a man aged forty, who had contracted syphilis in 1886. By 1904 he had developed unmistakable symptoms and physical signs of aneurism of the innominate artery. As the tumor was already quite large and daily growing larger it was decided to operate. The case had refused to respond to Tufnell's treatment. The right common carotid artery was ligatured above the omohyoid muscle, and the subclavian artery in its third part. The operative wounds healed well. Immediately after ligation a decided diminution in the size of the sac took place. Fifty-one days after the operation the portion of the sac in the episternal notch

was consolidated and felt firm to the touch, although a faint pulsation was still felt. A month later he was recommended for light employment. Shortly afterward he was able to walk a mile and a half each way daily to his work without dyspnea, and to follow his occupation of cleaning tools at the bench without inconvenience of any sort except slight fatigue of the right arm and shoulder. A small tumor, firm and but slightly expansile, and paralysis of the right vocal cord still persist. No temporal pulse is palpable, although a slight radial pulse can be felt. There is slight weakness and coldness of the right arm.

THE TREATMENT OF INTUSSUSCEPTION.

CLUBBE (*Australian Medical Gazette*, Sept. 20, 1905) maintains that irrigation is useful in all cases, even in those which one does not expect to reduce by this method. Irrigation will cure only a portion of the cases. The child should be put under an anesthetic, and the injection given and the fluid allowed to run out; if the tumor is still present operation should be done. Food should be withheld after the diagnosis is made until operation is performed. The site of the incision depends largely upon the position of the mass in the abdomen. If possible the coils of intestine should be kept in the abdomen, but it is useless to waste time trying to restrain them. When the mass is brought outside of the abdomen for the purpose of reduction it will be found that it will be necessary to replace it if it is in the descending colon in order to get it to pass the splenic or the hepatic flexure.

The reduction of an intussusception is always accomplished by squeezing from below upward, not by pulling upon the entering bowel. The reduction is usually easy until the mass returns as far as the cæcum; there it often stops. The attempt at reduction is not readily given up because the alternative, which is resection, is fraught with much danger. Sometimes the manipulation engenders such severe shock that the child will not rally. The cases which resist persevering efforts are few in number. The appendix is nearly always maroon-colored from the pressure exerted upon it; but unless it is

black or has lost its polish it should be let alone. Gangrene of the gut is very rare. Any tears in the serous coat should be mended with fine catgut, the bowel washed with normal saline solution and returned to the abdominal cavity. The abdomen is closed in layers by catgut or by through-and-through sutures of silk-worm-gut. These sutures should be left in ten to fourteen days.

CHOICE OF METHOD IN OPERATING UPON THE HYPERTROPHIED PROSTATE.

MEYER (*Medical Record*, Oct. 7, 1905) since October, 1902, has done thirty-eight prostatic operations, and based upon this experience thus summarizes his views in reference to the choice of operation:

We have to-day three useful methods for the operative relief of prostatic obstruction—i.e., suprapubic and perineal prostatectomy, and galvanocautic prostatotomy (Bottini's operation).

Unassailable proof has been furnished to show that all three methods deserve to be recognized as standard procedures, each being capable of bringing permanent relief.

Whenever the patient's condition, irrespective of age, seems to warrant it, prostatectomy should be done, since the total removal of the mechanical obstruction naturally represents the most surgical procedure.

While it is true that either method, perineal or suprapubic, can be successfully employed to the exclusion of the other in removing the hypertrophied prostate gland, it certainly means facilitating our work and is in the interest of the patient if we use both procedures, choosing in each instance the one that seems best suited to the particular case. The selection of the route, on strict indication, is not an easy matter at present. Further reports by surgeons practicing both procedures are needed to decide the question. Both methods are excellent and useful ones. The choice up to the present time is largely a matter of individual inclination. Perhaps we are warranted in saying, on basis of our present experience:

(a) Glands palpable per rectum and rising not far from the sphincter ani muscles can be advantageously attacked from below.

"(b) If situated higher up and if the growth projects well back into the bladder, they should be enucleated from above, all the more if the cystoscope has shown the presence of a median lobe.

(c) A hypertrophy of soft character in the early stages, so frequently found to be made up of a number of smaller nodules, each of which can be enucleated by itself, is best attacked from below.

(d) In the 33 per cent of cases in which no tumor is palpable per rectum, but in which vesical enlargement is recognized by the residual urine or total retention, and seen distinctly by means of the cystoscope to be the obstructing cause, the suprapubic route deserves the preference.

(e) If the enlargement be complicated by calculi too large to be easily extracted through the dilated internal sphincter muscle, the suprapubic route is indicated.

(f) In patients with very foul urine, where immediate drainage of the bladder is imperative, the suprapubic incision should be chosen. The gland may then be removed at a second sitting.

(g) The comparatively frequent appearance of carcinoma of the prostate may prove to become an important factor in deciding in favor of complete removal of the gland from above.

The question of the preservation of sexual power is an important one. Further experience and investigation are needed to enable us to definitely determine whether there is any difference in results as to this point between the two methods of operation. As it seems to-day, the suprapubic operation is superior in this respect to the perineal method, even though in the latter the portion of the gland immediately surrounding the prostatic urethra and the ejaculatory ducts have been preserved. If future statistics should prove that with suprapubic prostatectomy the sexual function is more frequently preserved than with the perineal procedure, this must necessarily decide the choice of route in patients in whom this point has still to be considered.

If operation with the knife be refused, or there be contraindications to such intervention, Bottini's operation is in order.

Only if this operation, too, be refused or impossible are we justified in relegating a patient to the regular use of the catheter.

Cystoscopy is absolutely necessary before doing Bottini's operation; it should also precede perineal prostatectomy in order to enable us to determine the presence or absence of a median lobe and calculi; it may be dispensed with if the suprapubic operation has been decided upon, although a previous, distinct knowledge of intravesical conditions must be welcome to the operator. In that 33 per cent of prostatics who present no enlargement on rectal palpation, the cystoscope alone can establish a distinct and refined diagnosis.

The time for operation, at least in the rank and file of prostatics, has arrived when regular catheterization has become imperative. The catheter should never be entrusted to them for regular use. Well-to-do patients, being in a position to take the time and care necessary for the carrying out of self-catheterization on aseptic principles, may be allowed to do so if opposed to operative intervention.

Another strict indication for operation is persistent severe pains in the perineum, neck of bladder, and glans penis, resisting ordinary treatment.

Surgeons should familiarize themselves with perineal and suprapubic prostatectomy as well as with galvanocaustic prostatotomy (Bottini's operation), in order to be able to do justice to the prostatics entrusting themselves to their care, for no one method of operation can be employed in all cases of prostatic enlargement to the best advantage of the patient. In other words, we must select the operation that suits the case.

BLOODLESS RESECTION OF RECTAL PROLAPSE.

LAPLACE (*Medicine*, October, 1905) describes the method as follows: The prolapse is drawn out to its full extent by volsella forceps. A large, curved Hagedorn needle, armed with stout twisted silk, is introduced through the double thickness of the rectum on a level with the margin of the anus. The ligature is then cut in two. About an inch away on the same level another ligature is inserted. The inner end of the first ligature is tied to the inner end of the second ligature, the knot thus made is drawn tight against the inner wall of the cylinder formed by the prolapse, and the

outer ends are tied tight upon the outer wall of the cylinder. Other ligatures are introduced, and tying is proceeded with as in the first instance, until the entire prolapse has been encircled. All rectal tissue below the ligatures is cut away with the knife.

Then each ligature is removed singly, and the cut end of the bowel is sutured to the anus. The patient is put on a liquid diet and given an enema daily. There is almost complete freedom from post-operative pain.

TWO OPERATIVE CASES OF PYLORIC STENOSIS IN INFANTS.

ROTCH and LADD (*Archives of Pediatrics*, October, 1905) report two cases of operation for pyloric stenosis. The first case was an infant three weeks old operated upon by Munro. The anesthetic used was ether, and the incision was made in the median line. The stomach was found dilated to about the size seen at three months, and at the pylorus an oval solid tumor three-quarters by three-eighths of an inch in size. A posterior gastroenterostomy was done with clamps and suture, a jejunal loop being used. The opening made easily admitted a finger-tip. The day after the operation ten minims of brandy and one-half ounce of salt solution were given per rectum every three hours for two doses, then five minims of brandy and one ounce of peptonized milk every four hours per rectum. On the following day there was a small movement of the bowels. Rectal feeding was continued and peptonized milk given by the mouth, beginning with drop doses and gradually increasing. In the afternoon one-half ounce of peptonized milk was given every two hours. The bowels moved three times during the night. From this time on recovery was uneventful. There was very little vomiting, and the child gained rapidly in weight. It was discharged cured in twenty days after the operation, and at the end of a year was in full health and development.

The second case was an infant four weeks old, operated upon by Stone. Incision was made in the median line, and the stomach found fully distended, while the bowel was collapsed. The pylorus formed a firm mass one inch long by three-eighths of an inch in diameter.

Gastrojejunostomy was done and occupied twenty-six minutes. During this time the patient's condition became very bad. It did poorly despite restorative measures, vomiting a great deal, and five days after operation died. At autopsy the cause of death was found to be localized peritonitis.

The first case is the youngest upon which this operation has been done with recovery.

THE SURGICAL TREATMENT OF INTRA-SPINAL TUMORS.

HARTE (*Annals of Surgery*, October, 1905) defines intraspinal tumors as those which are within the spinal canal yet are not intramedullary. He has found records of 92 operations for such tumors with a mortality of 47 per cent, though in 17 cases death did not occur for some weeks or months after the operations. In view of this mortality the surgeon should not hesitate to operate. The most frequent new growths were sarcoma, adhesions, echinococcus, fibroma, the number of each being respectively 37, 11, 8, and 6. Thirty of the tumors belonged to 14 other varieties. The great preponderance of sarcomata and the number of cases of recovery reported indicate that the histological diagnosis is not always reliable. Harte reports two cases upon which he operated. The first was one in which there was paraplegia due to extradural thickening brought on by dorsal Pott's disease. Very marked improvement followed laminectomy. The second case was one of dermoid cyst of the spinal canal, which was removed with good results. A full description of the technique of operating is given.

A SIMPLIFIED OPERATION FOR HERNIA IN CHILDREN.

HERRING (*Intercolonial Medical Journal of Australasia*) describes a simplified operation for hernia in children which he has devised in accordance with Russell's theory that the presence of the sac is the cause of the hernia, and that the mere excision of the sac in children will result in a permanent cure. Herring calls attention to the fact that the chief difficulty in a hernia operation is the separation of the sac. This is obviated by his method of

operating, which is as follows: The incision is made into the sac in the usual position, the contents reduced, and the sac pulled down. The incision in the sac is extended up to the margin of the ring and the upper part of the sac turned inside out, exposing the peritoneal coat, which alone is cut transversely across. As the proximal end edge will retract within the abdomen unless controlled it should be caught in forceps as it is severed. After the peritoneal coat has been separated the proximal part should be closed with catgut and allowed to retract within the abdomen. The wound is closed with subcuticular stitches and sealed. The operation can be done in a few minutes. The ring need not be sutured unless it is large and lax or the patient has a cough. The contents of the inguinal canal are not disturbed. No vessels are cut, so no ligatures are needed. The chances of sepsis are very small.

SURGICAL INTERVENTION FOR INTRACRANIAL HEMORRHAGE IN THE NEW-BORN.

CUSHING (*American Journal of the Medical Sciences*, October, 1905) believes that some of the incurable nervous affections, as the various forms of infantile spastic palsy, and some forms of blindness, deafness, and feeble-mindedness, are due principally to intracranial hemorrhage suffered at birth, and that in some instances the late results of such hemorrhage can be warded off by immediate operation.

The author cites four cases. The first was a male child three days old, born in slow labor terminated by forceps, which was deeply asphyxiated. It did badly for the first two days, was cyanosed, and had several convulsions. The fontanel was tense and bulging. Under chloroform an osteoplastic flap with its border just within that of the parietal bone was raised by cutting with blunt, curved scissors. A tense, plum-colored dura was uncovered, and under it was found a clot about one centimeter thick which covered the entire hemisphere.

The greater part of this clot was lifted off with a blunt instrument and the remainder irrigated with warm saline solution. The wound was closed without drainage. Two hours after operation the

child nursed from a bottle and there seemed good prospect of recovery, but eight hours later it died. No autopsy was permitted.

The second case was a child one week old, born in breech presentation, and showing pallid asphyxia. For five days the child was wakeful and stupid in nursing, but took nourishment fairly well. It then showed some rise in temperature and slowing of the pulse. On the sixth day convulsions set in and occurred with great frequency for two days. Operation was done, the flap being turned down as in the previous case. The dura was incised and the blood and clots irrigated away. The wound was closed without drainage. Convalescence was without incident and free from convulsions. A year later the child's attendant wrote: "The child stands, takes a few steps, says a word or two, and is a fine specimen of wholesome babyhood."

The third case was baby nine days old, born in a labor lasting forty-eight hours terminated by a low forceps operation. The child was profoundly asphyxiated at birth. There was a small forceps wound over the frontal region. On the third day there appeared an extreme protrusion of the eyeball. On the fifth day nursing was discontinued and the child became dull and stupid. The pulse was slow and the fontanel tense. On account of the protrusion of the eyeball it was supposed that there was thrombosis of the cavernous sinus due to fracture at the base. An osteoplastic flap was raised as in the other cases on the right side. On incision of the dura the brain, which was very soft, bulged, and was so easily lacerated that the temporal lobe could not be lifted sufficiently to determine if there was a clot at the base or not. The clots were washed out and the dura sutured. Fearing that the pressure might result in hernia or fungus, a flap was also turned down on the other side and the clots there washed out. This diminished the tension so that the fontanel became depressed. The bone flaps were replaced and the scalp wounds closed without drainage. The child at once began to improve, and took nourishment from the bottle on the following day. Both wounds healed by primary intention. Ultimately the exophthalmos disappeared, but the eye is probably permanently blind. At the present time the

child is healthy and shows no motor disability.

The fourth case was a child born in a precipitous labor. On the following day it showed a swelling over the left parietal region, which rapidly increased in size. On the fourth day there was inequality of the pupils, the pulse was slow, and the child stupid. The swelling was 5 centimeters high and pulsating. There was one convulsion, and the child was in an unfavorable condition. By incision into the scalp two or three ounces of blood was liberated from beneath the epicranium; then an osteoplastic flap was made, as in the previous cases. The dura was opened, and a large clot about one centimeter thick, which seemed to cover the whole hemisphere, was exposed. While removing the more remote parts of the clot the child died. At autopsy it was found that the hemorrhage was almost entirely subtentorial. The author believes that, contrary to usual teaching, infants endure cranial operations very well, and that their blood coagulates more readily than is ordinarily supposed.

FORTY CONSECUTIVE CASES OF FRACTURE OF THE PATELLA TREATED BY WIRING.

MOULLIN (*Lancet*, Sept. 23, 1905) in the last eleven years has had forty cases of fracture of the patella, all of which were treated by wiring. At first he used this method only in young adults, but for the last eight years has treated every case but one by wiring. In the first twenty-eight cases some method of subcutaneous wiring was practiced, but all except Barker's were soon dismissed as unsatisfactory. Barker's method has not been used during the past five years, because it was found by means of the x-ray that this method gave but little better results than the other subcutaneous methods. The last twelve cases have been treated by the open method, and there has been bony union in every case but one, as well as an enormous saving of time and inconvenience to the patient.

Operation is performed on the third or fourth day after the accident, when the swelling of the joint has ceased to increase. A semicircular flap is raised from over the fragments and the blood-clot turned out. Each fragment is drilled in

such a way that the wire does not project through the cartilaginous surfaces. A single stout silver wire is passed through, and the ends twisted together until the fragments are in exact apposition, cut short, and buried. No antiseptic is permitted to touch the inside of the joint. Blood can be removed with scoop and forceps. The torn fascia is united with catgut. No drain is inserted, but the angle of the cutaneous incision is left a little open. No splint is used. Deep and superficial dressings are applied, and the knee is firmly bandaged. On the third or fourth day the bandages and the superficial dressings are removed and replaced by a lighter bandage, and the patient encouraged to flex and extend the limb more and more each day, until at the end of two weeks it can be bent to a right angle. Massage is begun as soon as the wound is healed. The patient is allowed to get up before the end of the third week, and by the end of the fourth week is able to walk without a limp and to kick. In none of the forty cases has there been a rise of temperature worth mentioning. The twelve patients who can be traced can walk perfectly and can kneel.

The author has no doubt that when this operation is done properly it is infinitely better than any other method.

TREATMENT BY DOYEN'S SERUM.

Twenty-six cases were reported to the Société de Chirurgie by DOYEN and DELBET (*Revue de Chirurgie*, No. 9). Most were cancers of the breast. One case remained without recurrence, two were stationary, twenty grew rapidly worse, and three were lost sight of. The report as well as the discussion, in which five other cases are reported with no good results, is entirely unfavorable to its use.

EXTRAPERITONEAL RUPTURE OF THE BLADDER COMPLICATING FRACTURE OF THE PELVIS, WITH RECOVERY.

EASTMAN (*New York and Philadelphia Medical Journal*, Oct. 14, 1905) describes three cases of extraperitoneal rupture of the bladder complicating fracture of the pelvis in which recovery followed treatment, which consisted in combating shock, removal of the clot, suture of the rent in

the bladder, appropriate bladder drainage, rest, and the application of a bandage in such a manner as to prevent movement of the pieces of bone which were broken off.

FRACTURE OF THE SPINE.

BURRELL (*Annals of Surgery*, October, 1905) gives a summary of the 244 cases of fracture of the spine at the Boston City Hospital between 1864 and 1905. There are three methods of treatment—the expectant, reduction and fixation, and laminectomy. The latter may be primary or secondary. The author believes in the primary operation unless contraindicated by shock. The technique of operations is that of Munro, described in the *Journal of the American Medical Association* of January 6, 1900. Burrell's conclusions are as follows:

1. That fractures of the spine may well be divided into two classes: first, fracture of the spine with injury to the cord; and secondly, fractures of the spine without injury to the cord.

2. That it is not best to decide what the treatment of an individual case of fracture of the spine should be from the statistics, because the lesion varies so widely.

3. That in many cases of fracture of the spine it is impossible to primarily state whether the cord is crushed or pressed upon by bone, blood, or exudate, except by an open operation.

COMPLETE EXTIRPATION OF THE PENIS FOR EPITHELIOMA; RECOVERY.

ARMITAGE (*Lancet*, Sept. 30, 1905) reports the case of a man of twenty-eight whose penis he completely extirpated for epithelioma. The patient had never been able to retract the foreskin farther than half the length of the glans. Six or seven years before operation a small pimple was noticed upon the left side of the glans midway between the meatus and the corona. This healed and broke open again several times, until four months before operation it again ulcerated and refused to heal. The glands in the left inguinal region formed a large, elongated, indurated mass above Poupart's ligament, adherent to each other but not to the skin. The entire penis, the left testicle, re-

dundant portions of the scrotum, and the glands of both groins were removed. The raw surface was covered in later by undermining and drawing together the skin on the two sides. Healing was satisfactory, and though it is over a year since the operation there has been no recurrence, and the patient has been continuously at work. Armitage believes that in these operations one testicle should be left, so that the economy may not be deprived of the internal secretion of the testicles.

TWENTY-SIX CONSECUTIVE CASES OF GASTROENTEROSTOMY.

ANDERSON (*Lancet*, Sept. 30, 1905) reports his twenty-six gastroenterostomies, which comprise one for recent ulcer, eleven for chronic ulcer, eight for pyloric stenosis, and six for cancer. There were three deaths, which number appears to the author to be too high. One death was due to bronchopneumonia and cardiac failure, one to cancerous metastasis, and one to impaction of feces in the colon.

In every instance there was a palpable lesion, and prolonged medical treatment had been without avail. The great benefit from the operation has been very striking. It appears to be productive of nothing but good to the patients and leaves no disability. Within three weeks after the operation the patients are eating the ordinary hospital diet. As a rule vomiting, except that from anesthesia, ceases as soon as the operation has been performed. The rapid increase in weight is remarkable. The most striking improvement occurs in cases of old callous ulcer about the pylorus with stenosis.

In one case in which there was much involvement of the pyloric region and some of the neighboring glands with what appeared to be cancer, even to the microscopist, gastroenterostomy was done, and ten months later the patient appeared in good health. The author believes that in such cases, when the patient will not bear gastrectomy, it is quite worth while to do gastroenterostomy, and thus give him the benefit of any doubt as to diagnosis. Posterior gastroenterostomy has been done by Anderson in all his cases, and the suturing has been done without any instrumental aid. The objections to in-

strumental aid are that a foreign body is left in the anastomotic wound, and the opening has to correspond with the dimensions of the bobbin or button and cannot be made of such size as the conditions in some instances require. Too small an opening is a late but recognized cause of failure, and it is a serious one, as it is most difficult to rectify afterward. By performing the operation before the patients are reduced by suffering and starvation better results may be hoped for, and the mortality in the hands of operators familiar with abdominal surgery will probably not be greater than five per cent.

TUBERCULAR CONDITIONS OF THE SPINE—TREATMENT.

WILLARD (*Annals of Surgery*, October, 1905) concludes a detailed discussion of the treatment of tubercular conditions of the spine as follows:

Complete methodical and long-continued fixation of the spine in the position of hyperextension, with healthy surroundings in the sunlight, are the prime factors in securing new ossific deposit necessary to replace the carious bone.

Laminectomy for paraplegia is advisable only after long-continued and patient treatment along the above-named lines from one to two years, since the prognosis, especially in children, under these conditions is favorable, and good powers of locomotion may be confidently expected. The operation is justifiable in selected cases where loss of motion and sensation are progressively worse and the symptoms threaten life. If the tubercular masses within the spine can be removed, and if extradural pachymeningitic deposits or pus can be taken away, improvement may be expected, and in many cases relief occurs. The operation has a mortality of about 25 per cent from immediate shock, 36 per cent within a month; while one-half the cases die within the year, their lives being probably shortened by the operative procedure. Cases of non-improvement and death equal nearly 65 per cent.

Forcible, immediate straightening of the kyphosis is an unsurgical and dangerous proceeding; it is liable to reawaken the tubercular disease and to weaken the column.

Forcible, gradual straightening by sup-

porting the kyphotic area upon a pedestal is a valuable agent in relieving deformity. The weight of the shoulders and pelvis can thus be utilized as straightening forces, and the weight of the column thrown upon the posterior arches. In this position it is permanently fixed by plaster of Paris.

Complete erasion of the carious bodies of the vertebræ is an uncertain operation; in the dorsal region requiring section of ribs, with danger of wounding the pleura.

Wiring of the spinous processes has never been sufficiently tried to demonstrate its helpfulness.

Spinal abscesses which contain only liquefaction or caseation should be aspirated. When true pus has formed, aseptic, thorough drainage is advisable.

AMPUTATION AT THE HIP-JOINT BY WYETH'S METHOD.

HORSLEY (*American Medicine*, Oct. 21, 1905) says there are three dangers in hip-joint amputation, which are, in the order of their importance, hemorrhage, shock, and sepsis. By Wyeth's method the mortality has been reduced from 64 per cent to less than 20 per cent. Shock should be guarded against by shortening the period of anesthetization, keeping up body heat, and cutting down upon the sciatic and the anterior crural nerves, and injecting them with two-per-cent solution of cocaine. Horsley describes four cases, two of which have been previously reported; of these one was fatal in twelve hours. The other three made more or less complete recovery, though one died one year after operation from recurrence of the sarcoma for which the operation had been done.

THE PRIMARY EFFECT OF X-RAYS ON THE TISSUES.

A series of experiments were made by SCHULTZ and HOFFMANN (*Deutsche Zeitschrift für Chirurgie*, Bd. lxxix, Heft 4) to determine whether the degenerative changes in glands were due to changes in the blood-vessels and interference with nutrition, or to a direct effect on the epithelial cells. The kidneys of guinea-pigs were dislocated outside the body wall and exposed directly to the rays. They

decided that the primary change was a degeneration and destruction of epithelial cells, and that the increase of connective tissue was secondary. The blood-vessels and glomeruli were not affected, although the lesions resembled interstitial nephritis.

THE MCGRAW LIGATURE.

OCHSNER (*Journal of the American Medical Association*, Oct. 21, 1905) says that since December, 1902, he has used the McGraw ligature 156 times in intestinal anastomosis, and from his experience has drawn the following conclusions:

Anastomosis with the McGraw elastic ligature can be accomplished in a satisfactory way (a) between stomach and intestines, (b) between intestine and intestine.

The opening can be made any desired length.

It can be made without carrying infectious material from the lining of the stomach or intestine to the peritoneum.

It can be performed quickly.

It requires no special skill or ingenuity.

The patients show very little, if any, shock after the operation.

The patients are relatively very free from pain, and can usually sit up in bed with the aid of a head-rest a few hours after the operation.

The method should not be employed in making a pyloroplasty.

It should not be used in making a cholecystenterostomy.

CANCER OF THE PYLORIC ANTRUM.

Cancers of the pyloric end of the stomach which do not involve the pylorus itself nor cause symptoms of obstruction are treated by DELORE and LERICHE (*Revue de Chirurgie*, No. 9, 1905), who deprecate the fact that many surgeons believe that all cases of gastric cancer without obstruction involve the cardia and are not available for pylorotomy. The diagnosis from cancer of the cardia is made by the position of the palpable tumor and by the presence of hyperchlorhydria with tumor, or later by symptoms of stenosis. The authors believe that all persons past fifty in whom gastric symptoms (dys-

pepsia) occur without apparent cause, and accompanied by loss of weight, should be suspected of having cancer and subjected to exploratory laparotomy. In almost all cases radical operation is possible, as there are few adhesions and slight tendency to early metastasis.

SURGICAL TUBERCULOSIS—POSTOPERATIVE TREATMENT.

The usual cause of death after operation for local tuberculosis is, according to KRAEMER (*Deutsche Zeitschrift für Chirurgie*, Bd. lxxix, Heft 4, 1905), visceral tuberculosis. He advises therefore that all cases should be treated with tuberculin after operation, and if the reaction is positive should be treated for tuberculosis until a negative reaction occurs.

AVULSION OF THE TUBEROSITY OF THE TIBIA.

An exhaustive article on this rare lesion is contributed by GAUDIER and BOURET (*Revue de Chirurgie*, No. 9, 1905), who collected twenty-three cases. The fracture is always produced by muscular action, and may be either complete or the fragment may remain attached at its upper end and be turned up as on a hinge. In either case the diagnosis is usually easy. The joint is generally opened in the former case, and hemarthrosis often results. In case of incomplete fracture the fragment should be drawn down into position and held by plaster and bandages until union occurs, which requires about three weeks. If the fracture is complete reduction and retention are generally impossible, and in these cases, especially if there is hemarthrosis, the part should be exposed by a U-shaped incision and the fragment drawn down and fastened in place by sutures of fine silver wire or by silver staples driven into the bone. In case there is difficulty in replacing the fragment a strong silk suture may be passed through the patellar tendon and traction exerted on it. Passive motion should not be delayed more than ten days, and walking may be permitted after three weeks. In cases not operated on passive movements are not begun until after twenty days, and standing not until much later.

SCOLIOSIS—THE USE OF HEAT BEFORE EXERCISE.

The effect of hyperemia in increasing the mobility of stiff joints suggested to KLAPP (*Deutsche Zeitschrift für Chirurgie*, lxxix, No. 4, 1905) the use of local heat to the spine in cases of scoliosis to replace the massage formerly given before exercise in the gymnasium. The patients sit with the back fitted into an oval opening in a cabinet, in which burns a gas-flame covered by a copper dome. This is continued for twenty minutes. The patients all say that the back feels much freer, and measurements taken after heating show more mobility. It acts rather better than massage, and of course is much more easily applied.

THIERSCH'S SKIN-GRAFTING—SIMPLER TECHNIQUE.

The improvement proposed by L. ISNARDI (*Centralblatt für Chirurgie*, xxxii, No. 14) consists in applying the grafts directly to the granulations instead of removing the latter.

The granulations must be small, rose-red, hard, and healthy, and can be made so by frequent washing and frequent change of dressing, using alternately dry and moist, and guarding against bleeding, employing the cautery if necessary.

The grafts are held in place by a layer of thin gauze, which must be drawn tightly over the ulcer. Over this, which is never changed, is placed a wet dressing of 3.5-per-cent boric acid solution.

Isnardi has treated 140 cases in this way with constantly favorable results.

PATENT URACHUS.

VAUGHAN (*American Medicine*, Oct. 14, 1905) cites briefly fifty-two cases of other surgeons, and reports in detail a case of his own in a male forty years old upon which he operated successfully. The following methods of treatment have been used in this condition:

The application of caustic or of the actual cautery to the umbilical opening. Three patients were treated in this way, with two recoveries and one death.

The use of the cautery and ligature or suture. Two patients were treated in this manner, and both recovered.

The application of ligature or suture only. Four patients were treated by this method, and all recovered.

Plastic operation, dissecting up the skin to cover the opening. Two patients were treated thus, with one recovery and one death.

The urachus was slit up, curetted, or cauterized, and packed. Six patients were treated this way, with four recoveries, one death, and one result not given.

Removal of irritation—such as removing stones from the urachus, keeping up drainage, and keeping the parts clean—sometimes using adhesive plaster to approximate the edges of the opening. Five patients were treated in this manner, with four cures and one failure.

Removal of obstructions to the normal outflow of urine, as tight prepuce, stone or tumors in the bladder, hypertrophy of the prostate gland, or stricture of the urethra. Five patients were treated in this way, and all were cured.

Extirpation of the urachus, and sewing or ligating the part next the bladder, as in excision of the vermiform appendix. Eleven patients were treated by this method with ten cures, and in one case the result was not given.

No treatment. This includes the cases in which the patients declined treatment, the surgeon advised against operation, or no statement of treatment was given.

In all, thirty-eight patients were operated upon with thirty-two recoveries, three deaths, and in three cases the result was not given.

The methods which have for their object closing only of the umbilical end of the urachus and possibly leaving a tube, often infected, which may or may not communicate freely with the bladder, are not to be commended. The first four methods come under this classification, and include eleven cases with two deaths—in one case death was due to peritonitis following rupture of the urachus and escape of urine into the peritoneal cavity.

The method of slitting up the cavity and packing is a rational one, and ought to give good results; although there was one death from uremia in the six cases thus treated, but this would probably have followed any method of operating.

Extirpation of the urachus with the entire diseased area and closing of the opening in the bladder by sutures, with

union of the muscles and skin, with or without drainage, is the method of election.

Of sixteen patients treated by extirpation or by removal of obstructions to the urethra, fifteen recovered, and in one case the result was not stated.

THE EARLY DIAGNOSIS AND RADICAL CURE OF CARCINOMA OF THE PROSTATE.

YOUNG (*Bulletin of the Johns Hopkins Hospital*, October, 1905) bases his discussion upon forty cases of cancer of the prostate, and details a radical operation for this disease, which he has practiced upon four cases. His conclusions are as follows: Carcinoma of the prostate is more frequent than is usually supposed—occurring in about 10 per cent of the cases of prostatic enlargement, as shown also by Albarran. It may begin as an isolated nodule in an otherwise benign hypertrophy, or a prostatic enlargement which has for many years furnished the symptoms and signs of benign hypertrophy may suddenly become evidently malignant.

Marked induration, if only an intralobar nodule in one or both lobes of the prostate, in men past fifty years of age should be viewed with suspicion, especially if the cystoscope shows little intravesicular prostatic outgrowth, and pain and tenderness are present.

The posterior surface of the prostate should be exposed as for an ordinary prostatectomy, and if the operator is unable to make a positive diagnosis of malignancy, longitudinal incisions should be made on each side of the urethra (as in prostatectomy) and a piece of tissue excised for frozen sections, which can be prepared in about six minutes and examined by the operator at once. If the disease is malignant the incisions may be cauterized and closed and the radical operation performed.

Cancer of the prostate remains for a long time within the confines of the lobes, the urethra, bladder, and especially the posterior capsule of the prostate resting inviolate for a considerable period. Extraprostatic invasion nearly always occurs first along the ejaculatory ducts into the space immediately above the prostate between the seminal vesicles and the blad-

der and beneath the fascia of Dénonvilliers. Thence the disease gradually invades the inferior surface of the trigone and the lymphatics leading toward the lateral walls of the pelvis, but involvement of the pelvic glands occurs late, and often the disease metastasizes into the osseous system without invading the glands.

Cures can be expected only by radical measures and the routine removal of the seminal vesicles, vasa deferentia, and most of the vesical trigone, with the entire prostate, as carried out in four cases by the writer.

The four cases in which the radical operation was done demonstrated its simplicity, effectiveness, and the remarkably satisfactory functional results furnished.

HYDRARTHROSIS AND HEMARTHROSIS.

Hot-air treatment, air heated to 120° C., has been used by ANTOINE (*Archives de Médecine et de Pharmacie Militaires*, March, 1905) in the treatment of effusions into the knee. He left the joint exposed to the heat for one hour each day and used massage also. Recovery was always prompt, and without stiffness or wasting.

He proposes two improvements in the apparatus of Cahier: (1) The tube which delivers the hot air is bent on itself and discharges toward the wall of the cabinet instead of toward the limb: (2) the openings in the ends are of equal size, which makes the same cabinet serviceable for the right and left sides.

The results in acute inflammations, rheumatic and gonorrheal, were fairly good, but less striking.

TWO COLOR REACTIONS—PHLORIDZIN TEST AND CRYOSCOPY.

The old idea that urine of diseased kidneys showed a low freezing-point has been gradually replaced by the idea of KOVESI, that the diseased kidney can secrete neither a very dilute nor a very concentrated urine, and the more severe the lesion the nearer must the freezing-point of the urine approach that of the blood. The kidney power may be tested partially by giving large amounts of water and observing the highest freezing-point obtainable. Kapsammer says that as it

is the power of excreting water that is being tested, it is just as accurate to measure the specific gravity, but as Kovesi's idea is that the osmotic power of the kidney is shown by its power to secrete a urine differing in osmotic tension from the blood, and as the osmotic tension is shown by the freezing-point and not by the specific gravity, this contention does not seem well founded.

Ureteral catheterism may call forth a reflex polyuria which gives a urine of very low specific gravity, and may thus interfere with results unless great care is taken. The rate of excretion may rise to ten times the normal. The number of molecules, etc., excreted cannot be measured accurately in this case, as part of the urine flows alongside of the catheter into the bladder and is lost.

The cryoscopic investigation of the blood has already been almost entirely given up as a means of determining the power of the kidneys, as kidney disease is not always synonymous with insufficiency, and uremia may occur with normal organs.

Kümmel's efforts to place kidney insufficiency on a definite foundation have therefore failed. Cryoscopy is of no value to the surgeon.

As pigments methylene blue is never to be used, but always indigo carmine. Völeker and Joseph have worked with this, but the facts are not sufficiently numerous to be of very great clinical value, although it is the best method known for determining the activity of the kidneys. The flow from the ureter should be observed with the cystoscope.

The phloridzin test is probably the best for the general condition of the kidney. Experiments of Hellin and Spire and clinical observations by Senator, Strauss, and others have shown its value. Rovsing reported a large number of cases in which glycosuria did not occur, but he may have used a cold solution, and as it precipitates in the cold his results are to be viewed with caution. Israel, however, reports two cases which are above criticism in which the same was true.

Kapsammer himself made a series of clinical tests with phloridzin, in all of which the results were excellent and agreed perfectly with the pathologic findings. In all diseases of the kidneys, except in some diseases of chronic paren-

chymatous nephritis, the excretion of sugar is decreased, but as it is lessened in per cent by the reflex polyuria it is better to note the time in which it appears when the two urines of the kidneys are being compared with one another. Normally it appears in from twelve to fifteen minutes after an injection of a warm solution of 0.01 phloridzin. The author is still continuing his experiments, and expects shortly to bring them out in book form.

Reviews.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS. With Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc. Eleventh Edition, Enlarged, Thoroughly Revised, and Largely Rewritten. Illustrated. Lea Brothers & Company, Philadelphia and New York, 1905. Price \$4.00.

The necessity for the preparation of the eleventh edition within a year of the appearance of the tenth edition is made clear in the preface, which we append:

"When the first edition of this book appeared, fifteen years ago, the author stated in the preface that his object was to provide the physician or undergraduate student of medicine with a reliable guide in the study of Therapeutics, or the application of remedial measures for the cure of disease. It was written because, in the belief of the author, most of the text-books on this subject treat of it as if the student were already a skilled physician or experimental pharmacologist. As a consequence two classes of undergraduate readers exist. One finds that the mixture of science and empiricism is too difficult for him to fathom, and is hopelessly confused; the other simply learns the remedies and doses by heart and gives drugs with little idea as to what they are to do. Further than this, the physician is often at a loss to decide when a remedy is indicated, even though his theoretical knowledge of the subject be very thorough. Thus, he is told that ammonium chloride is a remedy in bronchitis, but the exact stage at which it is to be employed is often not stated; or he knows that digitalis does good in cases of cardiac disease, but fails to recognize the fact that it is only when compensation is lacking that the drug is

needed. For this reason Part IV, on Applied Therapeutics, was written, not with the object of providing a rigid system for treating diseases, but rather for the purpose of bringing together the best remedies, and of showing how and why they are given.

"The appearance of the new United States Pharmacopœia in the summer of 1905 has necessitated a large number of alterations in the text of this volume. Many preparations heretofore official have been excluded and new ones introduced. A large number of tinctures have been changed in their strength, and therefore in their doses.

"In many instances the names of drugs used by physicians for years have been greatly changed, as, for example, the substitution of acetphenetidinum for phenacetin, or hexamethylenamine for urotropin. In cases such as these the author has intentionally allowed the older name to head the article on the subject at issue and given the new name under it, so that the reader may not be subjected to the annoyance of a cross reference and may gradually become accustomed to the new nomenclature. It will be noticed that fluid extracts are now classified under the compound Latin term 'Fluidextractum.'

"Throughout this book, in every part where drugs or diseases are considered, the writer has arranged the titles in alphabetical order, according to the name commonly employed. This has been done because it is desired to afford the reader a ready reference book to which he may turn at short notice for desired information, for at present the state of pharmacology is so unsettled that a true classification is impossible. Thus, morphine may be classed by one writer as a nervous sedative, by another as a sleep-producer, by a third as a bitter substance, and by a fourth as a respiratory depressant. Bromide of potassium may, with equal propriety, be called a spinal sedative or a cerebral sedative, or caffeine may be classed as a cerebral stimulant, a circulatory stimulant, or a diuretic.

"In order to make the book more complete, the preparations of the British Pharmacopœia have been introduced; and with the same object in view a dose list of drugs, both official and unofficial, has been appended for ready reference.

The subject of medical electricity has heretofore commonly found a place in most text-books on therapeutics, but has been advisedly omitted in this instance, since electrical therapeutics has outgrown any work save one devoted to that subject alone.

"For many of the articles on treatment the author wishes to thank friends who have earned prominence in connection with their specialties. Thus, Dr. G. E. de Schweinitz has contributed the articles on the treatment of diseases of the eye; Dr. Edward Martin those on the treatment of venereal diseases and on antiseptics; Dr. Barton C. Hirst those on the treatment of diseases of the puerperal state. All of these articles enhance the value of the book to so great an extent that the author feels sure they will be sought out and read with interest.

"In addition to the general index, a copious and explanatory index of diseases and remedies has been appended, which will prove suggestive and valuable to practitioners."

A TREATISE ON DIAGNOSTIC METHODS OF EXAMINATION. By Professor Dr. H. Sahli. Edited with Additions by Francis P. Kinnicutt, M.D., and Nathaniel Bowditch Potter, M.D. W. B. Saunders & Company, Philadelphia, 1905. Price \$6.50.

The work of Professor Sahli, of Berne, is known all over the world because of the great interest which he has had in diagnostic methods. Amongst other methods which are commonly employed we recall the fact that he was one of the first to urge the employment of salol as a means of determining the motor activity of the stomach. In the present volume he has presented an immense amount of information not only as to the chemical methods of diagnosis, but also as to the methods which are commonly employed by skilful clinicians at the bedside, and he takes care to impress upon us not only the advantages which are to be obtained by the employment of these methods, but, in addition, the fact that in most instances he has put these methods to the test of practical experience, and therefore his indorsement of a method is peculiarly valuable. The book is a much larger volume than most works devoted to the subject of diagnosis. Indeed, it may be said to contain most of the information given in the celebrated book

of von Jaksch, combined with descriptions of physical diagnosis discussed in works devoted to this subject. It is copiously illustrated, and its value to American practitioners is greatly increased by the editorial supervision of Dr. Kinnicutt and Dr. Potter, who have added to the richness of the illustrations by many additional pictures drawn from American sources.

Sahli's Diagnostic Methods will undoubtedly at once obtain for itself a high place in the esteem of American clinicians and laboratory investigators, and will form a bond between the bedside and the laboratory which will prove of value to both practitioners and laboratory workers.

DOSE-BOOK AND MANUAL OF PRESCRIPTION WRITING. With a List of the Official Drugs and Preparations and Many of the Newer Remedies, with Their Doses. By E. Q. Thornton, M.D., Ph.G. Third Edition, Revised and Enlarged. W. B. Saunders & Company, Philadelphia, 1905.

This excellent little manual of Dr. Thornton's, which has reached its third edition, provides for the first-year medical student pretty much all the information which he needs during his course in materia medica for that year. After opening chapters upon weights and measures, we find a part directed to prescription writing, the official preparations and methods of prescribing; another upon "Dosage;" a complete one upon "Official Drugs and Preparations;" and an appendix containing notes on the common poisons and their antidotes, synonyms, and comparative tables of important pharmacopoeial subjects. That part of the book which is devoted to the official and non-official preparations will doubtless prove most useful to the student, as it not only gives him the official name in Latin with its English synonym, but also briefly describes the substance, gives its dose, and the purpose for which it is employed.

DIABETES MELLITUS. By Professor Dr. Carl von Noorden. Edited by Boardman Reed, M.D. Translated by Florence Buchanan and I. W. Hall, M.D. E. B. Treat & Company, New York, 1905.

The present small octavo volume, which sells for \$1.50, embodies the lectures delivered in New York very recently under the Herter Lectureship Fund by von Noorden, and presents the

most advanced and complete views of this well-known clinician in regard to this important disease. The book does not, of course, go so far as to give us a clear conception of what diabetes is, for that is still beyond our ken, but it summarizes, in about two hundred pages, the very best views which are now extant in regard to this curious pathological state, and as such cannot fail to be of interest to progressive physicians.

A TEXT-BOOK OF ANATOMY. Edited by D. J. Cunningham, F.R.S., M.D. Second, Thoroughly Revised, Edition. William Wood & Company, New York, 1905.

Cunningham's Anatomy has already won for itself a well-earned place as a text-book of anatomy for students and practitioners. The first edition appeared in June, 1902, and the preface to the present second edition tells us that it was prepared in August, 1905. It is illustrated with 936 wood engravings, some in black and white and some in colors. The various parts of the book are composed of contributions made by Birmingham, the Professor of Anatomy in Dublin; Cunningham, who occupies the same chair in Edinburgh; Dixon, who hails from Dublin; Hepburn of Cardiff, Howden of Durham, Patterson of Liverpool, Robinson of Birmingham, Stiles of Edinburgh, Thomson of Oxford, and Young of Manchester. The book is smaller in size than Gray, and yet is a complete and exhaustive consideration of human anatomy. We are informed by teachers of this branch that it holds a very high rank in the field which it occupies.

PROGRESSIVE MEDICINE. A Quarterly Digest of the Advances made in the Medical and Surgical Sciences. December issue, 1905. Edited by H. A. Hare, M.D., Assisted by H. R. M. Landis, M.D. Lea Brothers & Company, Philadelphia, 1905. Price \$2.00, in paper cover.

The December issue of Progressive Medicine contains several articles which possess much interest to the general practitioner and to the surgeon. A chapter devoted to the diseases of the digestive tract and allied organs by J. Dutton Steele gives a complete and excellent summary of the advances which have been made in our knowledge concerning the pathology, diagnosis, and treatment of these conditions, and as he is devoting a large part

of his knowledge to further similar researches both in the laboratory and at the bedside, he is qualified to speak with authority upon the subjects of which he writes. Another article which is of a nature which renders it a necessity for every practicing surgeon is that of Dr. Bloodgood upon Anesthetics, Dislocations, and Fractures, including diseases of the bones and joints. This is a complete essay upon these subjects and presents methods of diagnosis and treatment which have to be employed by every surgeon who wishes to give his patients the benefit of a thorough knowledge of modern procedures. There are other articles by Dr. Bradford, of London, upon diseases of the kidney; a brief one by Dr. Belfield, of Chicago, upon diseases of the genito-urinary tract; and finally a complete and exhaustive therapeutic referendium in which Dr. Landis presents a summary of the therapeutic literature of the last twelve months, including the new methods of applying old remedies and the best methods of applying new ones.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., and John Ruhräh, M.D. W. B. Saunders & Company, Philadelphia, 1905. Price \$4.00.

Up to the time of the appearance of this book the only large work by an American author upon this subject was that of Dr. W. Gilman Thompson, of New York. The present volume, from Baltimore authors, is smaller than Dr. Gilman Thompson's book, but it is written upon lines which are very similar. The opening chapters are devoted to the chemistry and physiology of digestion, to the classes of foods, to beverages and stimulants, and then there follow other chapters upon infant feeding, diets for special conditions, special methods of feeding and diet in disease; this latter section of the book extending over nearly 250 pages. After this we find chapters upon special "cures," the dietetic management of surgical cases, army and navy rations of various nations, a discussion of the dietary of some of the public institutions of the United States, and finally recipes, diet lists, and weights and measures. The book is an excellent one, which can be read both by students and physicians with much satisfaction to themselves and benefit to their patients.

THE DIARY OF A LATE PHYSICIAN. By Samuel Warren. Arranged by Charles Wells Moulton. The Saalfeld Publishing Company, Akron, Ohio, 1905.

This is a book belonging to "The Doctor's Recreation Series," a number of volumes of which we have already noticed in these pages. The present one is perhaps the best that has appeared. The selections made from Warren's writings by Dr. Moulton are excellent, and no one can read them without being impressed with the delightful purity of the author's English. Many physicians will also see parallels of Warren's stories in their own early careers, and although at times it is manifest that he writes not quite as one who has been in the harness would write, at the same time the stories are sufficiently medical on the one hand to prove interesting to practitioners, and have a touch of pathos in them which renders them interesting to every one.

PATHOGENIC MICROÖRGANISMS, INCLUDING BACTERIA AND PROTOZOA. A Practical Manual for Students, Physicians, and Health Officers. By William Hallock Park, Assisted by Anna W. Williams, M.D. Second Edition, Enlarged and Thoroughly Revised. Lea Brothers & Company, New York and Philadelphia, 1905.

The status of Dr. Park among bacteriologists and original investigators in this country is so well established that any work which comes from his pen at once commands attention, and must be regarded as authoritative. In the preparation of the second edition, the work upon the protozoa has been undertaken by Dr. A. W. Williams, excepting the portion which deals with malaria, which is from the pen of Mr. L. B. Goldhorn, Instructor in Pathology in the University and Bellevue Hospital Medical College. The author and his assistant have carefully revised the parts on the bacteria. The book is copiously illustrated, and not only describes the various microörganisms which it discusses, but gives the various methods by means of which they may be differentiated and studied. In several instances, when there is a close resemblance between different forms of bacteria, comparative illustrations are employed to make the differentiation more easy for the student. In place of drawings, which are commonly used to show the appearance of the malarial parasite, this book contains

microphotographs, which are therefore real and true representations of the parasites in their various stages of development.

A MANUAL OF CHEMISTRY. By W. Simon, Ph.D., M.D. Eighth Edition. Thoroughly Revised. Copiously Illustrated. Lea Brothers & Company, Philadelphia and New York, 1905.

The eighth edition of this manual has been delayed for a year in order to incorporate in it the changes and additions in the new Pharmacopœia. The design of the book is to furnish to the student in concise form a clear presentation of the science of chemistry, an intelligent discussion of those subjects which are of interest to him, and a reliable guide for his work in the laboratory. The first part of the book, as is probably well known to many of our readers, opens with a discussion of chemical physics; the second with the principles of chemistry; the third with non-metals and their combinations; the fourth with metals and their combinations; the fifth with analytical chemistry; the sixth deals with carbon compounds, or organic chemistry; and the seventh with physiological chemistry. The book closes with an appendix containing tables of weights and measures, and elements, and finally an index. There is probably no text-book on chemistry which has been so widely used by students during the last decade as is this one, and it bids fair to maintain the popularity which it has established in the past.

PATHOLOGY AND MORBID ANATOMY. By T. Henry Green, M.D., F.R.C.P. Tenth American Edition, Revised from the Tenth English Edition, by W. Cecil Bosanquet, M.A., M.D., F.R.C.P. Lea Brothers & Company, Philadelphia and New York, 1905.

As the publishers say in their note to the tenth edition, the text-book which has reached this position needs no introduction, and notwithstanding the fact that pathology has undergone a remarkable transformation during the present generation, its editors have succeeded in keeping it up with the most modern points of view. Dr. Bosanquet tells us that in the preparation of the present edition he has not had much to do because the ninth edition was very thoroughly revised. Nevertheless, the text has been carefully gone over, and considerable ad-

ditions have been made, notably in the fields of animal parasitology and of immunity to infectious diseases. A chapter has been added dealing with auto-intoxication and nutritional diseases. Under Dr. Bosanquet's able editorial supervision the book maintains the prestige which it has already acquired.

THE PRACTITIONER'S VISITING LIST FOR 1906. Lea Brothers & Company, Philadelphia, 1905. Price, \$1.25.

It is only necessary to call attention to the fact that this excellent visiting list for active practitioners is once more ready for their use. As is well known, it appears in four styles: a weekly, dated for 30 patients; a monthly, undated, for 120 patients; a perpetual, undated, for 30 patients a week, and another for 60 patients. It contains in its opening pages valuable but concise information as to doses, obstetrical calculations, examination of the urine, important incompatibilities, brief notes on poisoning and antidotes, a table of doses, a therapeutic index, and finally and perhaps most important, pages devoted to the ligation of arteries, with a diagram showing where the incisions should be made for this purpose.

THE MEDICAL RECORD VISITING LIST FOR 1906. William Wood & Company, New York.

This visiting list is probably familiar to a large number of our readers. It is in many respects identical with the visiting list gotten out by other publishers, and is in every way worthy of professional esteem. Its opening pages contain much useful information, which may be referred to by the hurried practitioner during his visits to his patients.

THE PHYSICIAN'S VISITING LIST. P. Blakiston's Son & Company, Philadelphia, 1906.

This Visiting List is now in the fifty-fifth year of its publication. It appears in three forms: a regular edition, a perpetual edition, and a monthly edition. The regular edition is arranged for 25 patients per week for \$1.00, for 50 patients per week for \$1.25, for 75 patients per week for \$2.00, and for 100 patients per week for \$2.25. The fact that it is now in its fifty-fifth year indicates that its qualities are appreciated by practitioners.

HELPS AND HINTS IN NURSING. By J. Quintin Griffith, M.D., Ph.D. The John C. Winston Company, Philadelphia, 1905.

This book has a very much wider scope than will appear from its title, which might be supposed to indicate that it was intended for trained nurses. On the contrary, it seems to be intended as a manual not only for trained nurses, but for any one who wishes to do nursing. It not only gives directions for the care of the sick, but it goes so far as to tell about diseases peculiar to women, the signs of pregnancy, diseases and infections of infants and children and the treatment which may be adopted by a mother or a nurse. Although the author states that it is not his intention to have the book supplant the physician, so much information is given that we doubt not that many overconfident people would consider themselves, after reading this book, as being competent to treat a number of maladies which should only be treated by medical men. In the main the advice which is given seems to be excellent. But the giving of information in regard to the methods by which local anesthesia may be produced, and particularly the descriptions for the employment of cocaine, seem to be very unwise, in view of this drug being capable of producing severe symptoms or developing the so-called cocaine habit.

ORGANOTHERAPY. A Treatment by Means of Preparations of Various Organs. By H. Batty Shaw, M.D., F.R.C.P. William T. Keener & Company, Chicago, 1905.

We reviewed a number of months ago an excellent book belonging to this series by Bosanquet upon "Serums, Vaccines, and Toxins," and we now have presented an equally excellent little book upon Organotherapy. We are told in the preface that the present publication is an attempt to place before the reader a short account of the physiology of the glands of the body, with especial reference to internal secretions, and to supply a review of the practical applications in disease of the derivatives of various organs. The technical description of various glands is taken from Quain's Anatomy. The original part of the book consists in a compilation of most of the facts which we know from English, French, German, and Russian literature. The author first discusses the thyroid and

parathyroid glands, then the suprarenal glands, and follows this with sections upon the alimentary tract, including the pancreas and liver, the genito-urinary organs, the pituitary body, the thymus, the spleen, lymphatic glands and marrow, and last of all a chapter upon muscle, nerve tissue, and the placenta. To those who wish to have in a brief form a summary of the literature of this important subject, combined with copious references to recent literature, we can most heartily commend this little volume of 256 pages.

THE NATURE AND TREATMENT OF CANCER. Bailiere, Tindall & Cox, London, 1905.

The object of this little volume is to describe the methods of hypodermic medication which the author has found useful in the treatment of inoperable cancer. He begins by an introductory chapter upon hypodermic medication in general, and upon inoperable cancer in particular; then describes the effect of hypodermic injections of Chian turpentine in cancer, and also the use of sodium oleate, or soap injections. He also describes the use of trypsin injections, and discusses the relation of diabetes to cancer. The volume closes with a summary of his views. To those who are interested in the inoperable treatment of this disease, and we all are interested because we continually see cases in which operation is impossible, this book will prove interesting reading. But we fear that the author is a little too optimistic in regard to the results which can be obtained by these means.

PHYSICAL DIAGNOSIS. Including Diseases of the Thoracic and Abdominal Organs. A Manual for Students and Physicians. By Egbert Le Fevre, M.D. Second Edition, Thoroughly Revised and Enlarged. Lea Brothers & Company, Philadelphia, 1905.

Dr. Le Fevre's small octavo volume of less than 500 pages is an excellent presentation of the important subject of physical diagnosis. He has illustrated it in a number of instances by radiograph pictures showing the distribution of the bronchi by means of filling them with shot. The book is designed to present the main facts of physical diagnosis as they are met with by the practitioner, and as they are commonly presented by the teacher to the student. Dr. Le Fevre's

large experience as a teacher in this branch has qualified him to speak in an authoritative way as to the requirements of students, and we believe that the book will grow continually in favor as it becomes more widely known.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.A., M.D., F.R.C.P.

With the beginning of October began again the "busy hum" of medical schools and scientific societies in London; and as the custom is, most of the schools of medicine began their session with an introductory address. It is rarely indeed that this function is undertaken by the regius professor from either of our ancient universities, but this year London was fortunate in having the Regius Professor of Medicine at Cambridge, Dr. Clifford Allbutt, to deliver an opening address at King's College, and the Oxford Professor, Dr. Osler, to deliver an address at Guy's Hospital. The latter, with the ardent enthusiasm which might be expected of one who gave a crystal shrine to contain the skull of the admired writer of the *Religio Medici*, made his address a tribute to the memory of Sir Thomas Browne. To an account of Sir Thomas Browne's life he added a description of his published works, with comments—criticism would be too harsh a word for such gentle handling of quaint foibles and follies—particularly on the *Religio Medici*; and every book-lover will be grateful to Professor Osler for the interest he has kindled in the works of the old Norwich physician. Professor Clifford Allbutt dealt with the practical problems of medical education in London, and in a masterly address pointed out the true functions of a university, which, he said, were not to qualify for the practice of any particular trade or art, but to train the mind in proper habits of study and thought.

At Charing Cross Hospital Sir James Crichton-Browne, whose words are commonly pithy, if not profound, talked of efficiency, with special reference to the medical student. There was wisdom, he said, in our forefathers who fixed the

opening of medical sessions in October, for experiment shows that the energy of attention increases from October onward and abounds till March, then it begins to diminish, and is low during the summer months; muscular power, on the contrary, increases during spring and early summer. He insisted on the evils of short hours of sleep, and said he had known more medical men break down from insomnia than from almost any other cause. Speaking of alcohol, he said that the craving for this is acquired in nearly 90 per cent of the cases between fifteen and twenty-five years of age, and he advised the medical student to avoid it altogether.

Professor Kenwood at University College Hospital gave an interesting address on preventive medicine. He said that the public health policy of this country has reduced the general death-rate so that it is now 26 per cent less than it was fifty years ago, and this in spite of the steady flow of the population from the country into the crowded cities. But infantile mortality, on the contrary, has not decreased by one per cent, and at the same time the birth-rate in Great Britain has fallen more rapidly than in any other country. Each year the proportion of hand-fed children increases, and there can be no doubt that these infants stand a smaller chance of survival than those who are breast-fed. Amongst the causes of pauperism Mr. Kenwood considered phthisis to be one of the most important, for a man who died of this disease between the ages of twenty and fifty years had, on an average, been ill for three years before he died, and so incapacitated more or less from wage-earning. The only hope of controlling the prevalence of phthisis lies in compulsory notification.

At the Clinical Society an interesting demonstration was recently given by Dr. Newman, who came from Glasgow for the purpose, of the value of the cystoscope in the diagnosis of renal disease. Lesions of the bladder are, of course, more obvious in their interpretation by the aid of this instrument, but he showed that by the behavior of the flow of urine from each ureter into the bladder much can be learnt of the condition of each kidney; the appearance also of the orifice of the ureter gives some information. If

this is altered on one side and normal on the other, the kidney is affected on the side of the altered orifice. When the urine gushes more frequently from the ureter on one side than on the other, if the gushes are at the same time uniform in size and regular in rhythm, the kidney of that side is more active in function than the other; if, however, the gushes are irregular in size and rhythm, although frequent, there is some irritation of the kidney on that side; if they are distorted and irregular, there is probably some partial obstruction of the ureter. When the urine flows not in gushes, but in dribbles at intervals, there is probably dilatation of the ureter; if it dribbles continuously there is some weakness of the sphincter at the orifice. In addition to these indications, blood or other abnormal matter may be seen coming through the orifice of the ureter, and so the renal lesions may be determined. Sometimes also the character of the changes in the appearance of the orifice itself gives some indication of the renal change, as when a swollen or pouting orifice is associated with prolonged nephritis.

The treatment of bronchial asthma is an ever-recurring problem which has no solution of universal application. As every one knows, the rhinologists, in these days of specialism *in excelsis*, have been claiming the treatment of this disease as falling within their specialty, and Dr. Ball in an interesting communication brought before the Chelsea Clinical Society his own experience of the nasal treatment of asthma. Various measures have been tried—removal of polypi, the removal of the diseased conditions of the mucous membrane by knife or cautery, and where nature had failed to provide anything to remove, the rhinologist, still unabashed, has applied his electric cautery to some part of the normal nose; and herein lies the marvel, that better results follow this gratuitous irritation of the unoffending nose than are seen after removal of some morbid condition from the nasal mucous membranes. Dr. Ball himself had seen permanent cure of asthma follow some such nasal operation in certain cases, but said that in a far larger number of cases there was only temporary relief, the attacks being kept at bay for about twelve months, when

the nasal procedure had to be repeated. But even so, this method of treatment is a valuable one, for a few months of freedom from attacks is no small boon to the sufferer from severe asthma.

The treatment of ascites in cases of cirrhosis is often far from satisfactory. Dr. Campbell Thomson, addressing the Southwest London Medical Society, said that the ascites occurs under two conditions—one with chronic congestion and inflammation of the peritoneum, the other where a general toxemia is occurring as a result of the cirrhosis. In the former case the outlook is by no means hopeless: with repeated tapping, or if necessary with laparotomy, some cases improved, but in the latter condition of general toxemia the prognosis is extremely bad—the ascites is the beginning of the end. He referred to some recent observations by Messrs. Plant and Steele at Birmingham, in which the ascites was treated by injections of adrenalin chloride into the peritoneal cavity. The exact method of procedure was as follows: As much of the ascitic fluid as possible was drawn by a two-way trocar and cannula; then without withdrawing the cannula a drachm of solution of adrenalin chloride (1 in 1000), diluted to half an ounce with sterilized water, was introduced through the cannula by means of an exploring syringe. The cannula was then withdrawn, and the wound sealed with collodion in the usual manner; this was followed at once by gentle manipulation of the abdomen for five minutes, after which a firm binder was applied. The immediate result of the injection was sharp pain in the abdomen, and in a few hours there was some fever; but in two cases the ascites disappeared, apparently not to return, and in a third case after a second injection the same success was attained. These two observers used the injection not only for ascites but also for pleural effusion, when one tapping had failed to prevent recurrence of the effusion.

The sphere of electrotherapeutics seems to be ever widening; but like most new developments in treatment much is necessarily tentative, and much must fall eventually into disrepute. Some such fate as this was prophesied by Dr. Lewis Jones recently at the Hunterian Society for the high-frequency currents and light-baths, of which we have heard so much

recently; but he thought there was a more useful career before the latest application of electrolysis, for the introduction of ions into the tissues, as advocated by Professor Leduc, of Nantes. Dr. Lewis Jones had treated cases of rodent ulcer and lupus in this way by the electrolytic introduction of zinc ions into the tissue, using for the purpose a one-per-cent solution of zinc chloride. The effect upon rodent ulcer was very striking: two cases had been apparently cured by a single application, there being no recurrence after six and nine months. The results in lupus, though less striking, were very encouraging.

Notes and Queries.

AUSCULTATION OF THE RHYTHMIC SOUNDS PRODUCED BY THE STOMACH AND INTESTINES.

To the *American Journal of Physiology* of October 2, 1905, Cannon contributes a paper with this title. He reminds us that the loud gurgling sounds produced by the intestines were, of course, observed and recorded centuries ago—the descriptive designation “borborygmus” was employed even by Hippocrates. And Robert Hooke, in a remarkable passage written more than a hundred years before Laennec, suggested that “it may be possible to discover the Motions of the Internal Parts of Bodies—by the sound they make, that one may discover the works performed in the several Offices and Shops of a Man’s Body, and thereby discover what Instrument or Engine is out of order, what Works are going on at several Times and lie still at others;” and in support of this idea Hooke mentioned, among other instances, the hearing of the “Motion of Wind to and fro in the Guts.”

ACETONE IS INFLAMMABLE.

Through an error it was stated in the article by Dr. E. Q. Thornton, which was published in the November issue of the *GAZETTE*, upon “Changes in the New U. S. Pharmacopœia,” that “acetone is not inflammable.” The word “not” should be stricken out. Acetone is very inflammable.

